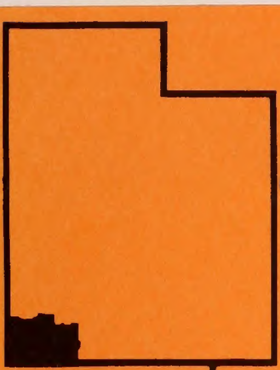
BLM LIBRARY
88046768

Draft



Dixie Resource Management Plan

& Environmental Impact Statement

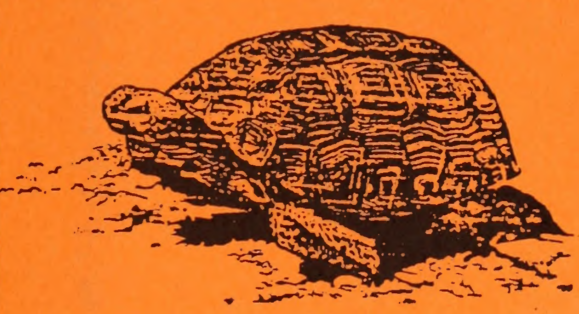
THE ENDANGERED DWARF BEARCLAW POPPY

Washington County faced with continued rapid growth

Rand McMally calls St. George sixth favorite

Tourism worth $2 billion to state's economy

St. George leads state in growth



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Cedar City District

March 3, 1849

United States Department of the Interior

TAKE PRIDE IN AMERICA

BUREAU OF LAND MANAGEMENT
Cedar City District Office
176 E. DL Sargent Drive
Cedar City, Utah 84720
(801)586-2401

1792/4300 HR
.002

Dear Reader:

This Draft Environmental Impact Statement (EIS) on the proposed Dixie Resource Management Plan is submitted for your review and comment. It assesses the impacts of implementing three possible alternatives to be used in the future management of all natural resources on the public lands in the Dixie Resource Area.

We welcome your comments on the content of this document. Those comments addressing the adequacy of the scope of the draft EIS or the impact analyses will be responded to in the final EIS. Specific comments will be the most useful. Comments may be submitted in writing or presented verbally. In order to be considered in the final EIS, all comments must be received within 90 days of the Federal Register notice of availability.

Please keep this copy of the draft EIS as an abbreviated final EIS may be issued in accordance with the Council on Environmental Quality (CEQ) regulations. Copies of the final EIS will be sent to all those who provide comments on the draft EIS or request a copy.

All written comments should be sent to:

Mr. David Brine
Bureau of Land Management
Dixie Resource Area
225 North Bluff St.
St. George, Utah 84770

Sincerely,

Gordon R. Staker

Gordon R. Staker
District Manager

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

ID88046768

HD
243
.U8
C43
1989

DRAFT
RESOURCE MANAGEMENT PLAN
ENVIRONMENTAL IMPACT STATEMENT
FOR THE
DIXIE RESOURCE AREA

Prepared by
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CEDAR CITY DISTRICT

Gordon R. Staker
District Manager
Cedar City District

James M Parker
State Director
Utah State Office

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

DIXIE RESOURCE AREA
RESOURCE MANAGEMENT PLAN/ENVIRONMENTAL IMPACT STATEMENT

(X) Draft Environmental Statement ( ) Final Environmental Statement

Department of the Interior, Bureau of Land Management

Type of Action: (X) Administrative ( ) Legislative

Abstract: This Resource Management Plan/Environmental Impact Statement describes and analyzes the impacts of three alternatives for managing the public lands in the Dixie Resource Area. The alternatives provide management recommendations to guide the multiple-use management of all resources. ACECs and recreation management areas are also recommended. Alternative C, is BLM's preferred alternative.

Comments: Comments on this document are requested from all interested and/or affected agencies, organizations, and individuals. Comments must be received within 90 days after the Federal Register notice of availability.

For Further Information contact:

David Brine
Bureau of Land Management
Dixie Resource Area
225 North Bluff St.
St. George, Utah 84770

TABLE OF CONTENTS

Page

CHAPTER 1 1

Introduction 1
  Purpose and Need 1
  Geographic Setting 3
  The Planning Process 3
Issues & Criteria 5
  Planning Issues 5
  Issues to Be Addressed in the Dixie RMP 6
  Planning Criteria. 7
  General Criteria (Parameters). 7

CHAPTER 2 12

Description of Affected Environment. 12
  Air Quality. 12
  Climate 12
  Soils 13
  Water 15
  Riparian Areas 19
  Vegetation 20
  Fluid Minerals 22
  Reasonable Foreseeable Development Scenerio 26
  Fluid Mineral Leasing Categories 27
  Locatable Minerals 27
  Saleable Minerals 29
  Rights-of-Way 31
  Withdrawal and Classification 32
  Lands 35
  Wilderness Resources 37
  Visual Resources 40
  Recreation Resources 42
  Cultural Resources 45
  Grazing Management 48
  Wildlife and Threatened and Endangered Species 53
  Forestry 60
  Hazardous Waste Management 60
  Fire 60
  Socioeconomics 63
  Special Management 72

CHAPTER 3 74

Alternatives 74
  Introduction 74
  Alternative A (No Action) 74
  Alternative B 74
  Alternative C (Preferred) 76

Management Common to All Alternatives 77
  Fluid Minerals 78
  Mineral Materials 78
  Mining Law Administration 78
  Rights-of-Way 79
  Lands 79
  Withdrawal Processing and Review 80
  Forest Management 81
  Grazing Management 81
  Cultural Resource Management 81
  Wilderness Management 81
  Recreation Resources Management 81
  Soil, Water and Air Management 82
  Wildlife Habitat Management 83
  Endangered Species Management 83
  Fire Management 83
  Hazardous Waste Management 83
  Transportation 84
  Socioeconomics 84
  Riparian Area Management 84
  Summary of Alternatives and Impacts 85

Alternative A 92
  Fluid Minerals Recommendations 92
  Mineral Materials Recommendations 92
  Locatable Minerals Recommendations 93
  Rights-of-Way Recommendations 93
  Lands Recommendations 93
  Withdrawal and Classification Recommendations 98
  Forestry Recommendations 99
  Grazing Management Recommendations 99
  Cultural Resources Recommendations 99
  Wilderness Recommendations 100
  Visual Recommendations 100
  Recreation Resources Management Recommendations 100
  Soil-Water-Air-Riparian Recommendations 103
  Wildlife Recommendations 105
  Threatened and Endangered Animals Recommendations 106
  Threatened and Endangered Plant Recommendations 106

Alternative B 107
  Fluid Minerals Recommendations 107
  Mineral Materials Recommendations 108
  Locatable Minerals Recommendations 110
  Rights-of-Way Recommendations 110
  Lands Recommendations 112
  Withdrawal and Classification Recommendations 119
  Forestry Recommendations 119
  Grazing Management Recommendations 121
  Cultural Resources Recommendations 122
  Wilderness Recommendations 122
  Visual Resources 122
  Recreation Resources Management Recommendations 126
  Soil-Water-Air-Riparian Recommendations 130
  Wildlife Recommendations 137

Page

Threatened and Endangered Animals Recommendations 139
Threatened and Endangered Plant Recommendations 140
Preliminary Prescriptions Common to All ACECs 142

Alternative C 145
Fluid Minerals Recommendations 146
Mineral Materials Recommendations 149
Locatable Minerals Recommendations 149
Rights-of-Way Recommendations 150
Lands Recommendations 150
Withdrawal and Classification Recommendations 154
Forestry Recommendations 154
Grazing Management Recommendations 154
Cultural Resources Recommendations 155
Wilderness Recommendations 155
Visual Resources 155
Recreation Resources Management Recommendations 155
Soil-Water-Air-Riparian Recommendations 157
Wildlife Recommendations 157
Threatened and Endangered Animals Recommendations 157
Threatened and Endangered Plant Recommendations 158

CHAPTER 4 159
Environmental Consequences 159
Introduction 159
Alternative A - Impacts 160
Fluid Mineral 160
Minerals (Saleable) 160
Minerals (Locatable) 161
Rights-of-Way 161
Lands 163
Withdrawal and Classification 164
Forestry 164
Grazing Management 165
Cultural 165
Visual 165
Recreation Resources 166
Soil, Water and Air 167
Riparian 167
Wildlife and Threatened and Endangered Species 168

Summary A. 171

Alternative B - Impacts 172
Minerals Fluids 172
Minerals (Saleable) 173
Minerals (Locatable) 173
Rights-of-Way 173

Page

Lands 175
Withdrawals and Classifications 176
Forestry 176
Grazing 176
Cultural 177
Visual Resources 177
Recreation Resources 178
Soil, Water, Air 180
Riparian 181
Wildlife and Threatened and Endangered Species 182

Summary B 186

Alternative C - Impacts 188
Fluid Minerals 188
Mineral Materials 189
Minerals (Locatable) 189
Rights-of-Way 189
Lands 189
Withdrawal and Classification 190
Forestry 190
Grazing Management 191
Cultural 191
Visual Resources 191
Recreation Resources 192
Soil, Water, Air, Riparian 192
Wildlife and Threatened and Endangered Species 192

Summary C 193

CHAPTER 5 195

Public Participation 195
Key Events Dixie RMP 195
Planning Consistency 197
Consultation and Coordination 198
Distribution 198
List of Preparers 201

APPENDIX 202

Planning Team Nominations for ACEC Consideration 202
Land Disposal Legal Descriptions Table 204
Lands Identified for Acquisition 220
Description of Recreation Opportunity Spectrum Classes 226
List of Acronyms 228
Implementation and Monitoring (preferred Alternative C) 229
Glossary 235
References 242

LIST OF MAPS FOUND IN MAP POCKET

Map of Dixie Resource Area Land Status

Map of Dixie Resource Area Alternative A

Map of Dixie Resource Area Alternative B

Map of Dixie Resource Area Alternative C

Map of Dixie Resource Area Off Road Vehicle Designations and Transportation Map - Alternative C

LIST OF TABLES

Page

Table 1-1 - Number of Acres - Federal, State, Private in Washington County . 3
Table 2-1 - Stream segments within the Dixie R.A. and their Water Quality Beneficial Use Designations 19
Table 2-2 - Vegetation Types in Washington County, Utah. 22
Table 2-3 - Summary of Classifications and Withdrawals 35
Table 2-4 - Wilderness Study Areas and Wilderness Area in the DRA 38
Table 2-5 - Grazing Summary 1986 51
Table 2-6 - Ongoing and Incompleted HMP Objectives 54
Table 2-7 - Wildlife Forage Allocation by Allotment 55
Table 2-8 - Washington County Personal Income and Earnings From Mining . . .68
Table 2-9 - Estimated Economic Values of Recreation on Utah Public Lands - 1987 72
Table 3-1 - Summary of Alternatives 85
Table 3-2 - Land Disposals 96
Table 3-3 - Land Disposals 115
Table 3-4 - Instream Flow Needs. 130
Table 3-5 - Land Disposals 152

List of Figures

Page

1-1 Dixie Resource Area Land Ownership . . . 2
2-1 Critical Soils . . . 14
2-2 Water Resources . . . 16
2-3 Riparian Habitat . . . 18
2-4 Riparian Area Along the Santa Clara River . . . 20
2-5 Fluid Mineral Potential . . . 24
2-6 Oil and Gas Leasing Categories . . . 27
2-7 Locatable Mineral Potential . . . 28
2-8 Saleable Mineral Potential . . . 30
2-9 Major Rights-of-Way . . . 33
2-10 Wilderness and Wilderness Study Areas . . . 39
2-11 Visual Resources Inventory Classes . . . 41
2-12 Anasazi Excavation . . . 47
2-13 Rock Art . . . 48
2-14 Big Game Habitat . . . 57
2-15 T&E Species . . . 58
2-16 Sensitive Species . . . 59
2-17 Forestry and Plant Products . . . 61
2-18 Washington County Population Projections . . . 65
2-19 Washington County Employment Trends . . . 66
2-20 Washington County Per Capita Income . . . 67
3-1 Land Disposal - Alternative A . . . 95
3-2 Off Road Vehicle Designation - Alternative A . . . 102
3-3 Oil and Gas Leasing Categories - Alternative B . . . 109
3-4 Designated Utility Corridors - Alternative B . . . 111
3-5 Potential Land Disposals - Alternative B . . . 113
3-6 Potential Land Acquisition - Alternative B . . . 114
3-7 Potential Easements - Alternative B . . . 120
3-8 Proposed ACECs - Alternative B . . . 123
3-9 VRM Classes - Alternative B . . . 124
3-10 Proposed Red Mountain Scenic ACEC - Alternative B . . . 125
3-11 Proposed Canaan Mountain Scenic ACEC - Alternative B . . . 126
3-12 Proposed SRMA - Alternative B . . . 127
3-13 ORV Designation - Alternative B . . . 129
3-14 Instream Flow Needs - Alternative B . . . 132
3-15 Fluid Mineral Leasing Categories - Alternative C . . . 147
3-16 ACECs - Alternative C . . . 148
3-17 Potential Land Disposals - Alternative C . . . 151
3-18 VRM - Alternative C . . . 156

CHAPTER 1

INTRODUCTION

Purpose and Need

The Virgin River Management Framework Plan (MFP) encompassing the Dixie Resource Area (DRA) was completed in 1977 in conjunction with the Hot Desert Grazing Environmental Impact Statement (EIS). However, litigation regarding the grazing decisions prevented final approval until 1981. A review of the MFP in 1985 determined that unexpected rapid population growth in Washington County (increasing from a 1970 population of 7,097 to 39,100 in 1986) resulted in a shifting of community development patterns and unforeseen pressures on the public lands.

In 1970, there were no public lands incorporated within city limits in the county. Today 4,600 acres of public land have been annexed into the communities and this acreage is rapidly expanding as the towns vie for territory. Since 1979, over 12,000 acres of public land in the Resource Area have transferred into state, community, and private ownership through various realty actions. Such demand often conflicts with the resource program decisions of the MFP and outdates the Washington County Master Plan of 1966.

Demographic trends are anticipated to continue upward at a rapid rate and various planning efforts are presently in process to accommodate this growth. The State of Utah Department of Natural Resources recently completed (1986) their Dixie General Management Plan proposing income management through sales, exchanges and leasing for 44,653 acres they manage near Washington County growth centers and a Virgin River Basin Study (headed by the Soil Conservation Service) is in progress for the County.

It was timely to initiate the Resource Management Planning (RMP) process for Bureau lands in FY1987 to provide BLM with current resource analysis and a decision making document in FY1990 coordinated with the Dixie General Management Plan and county land use projections through FY2010.

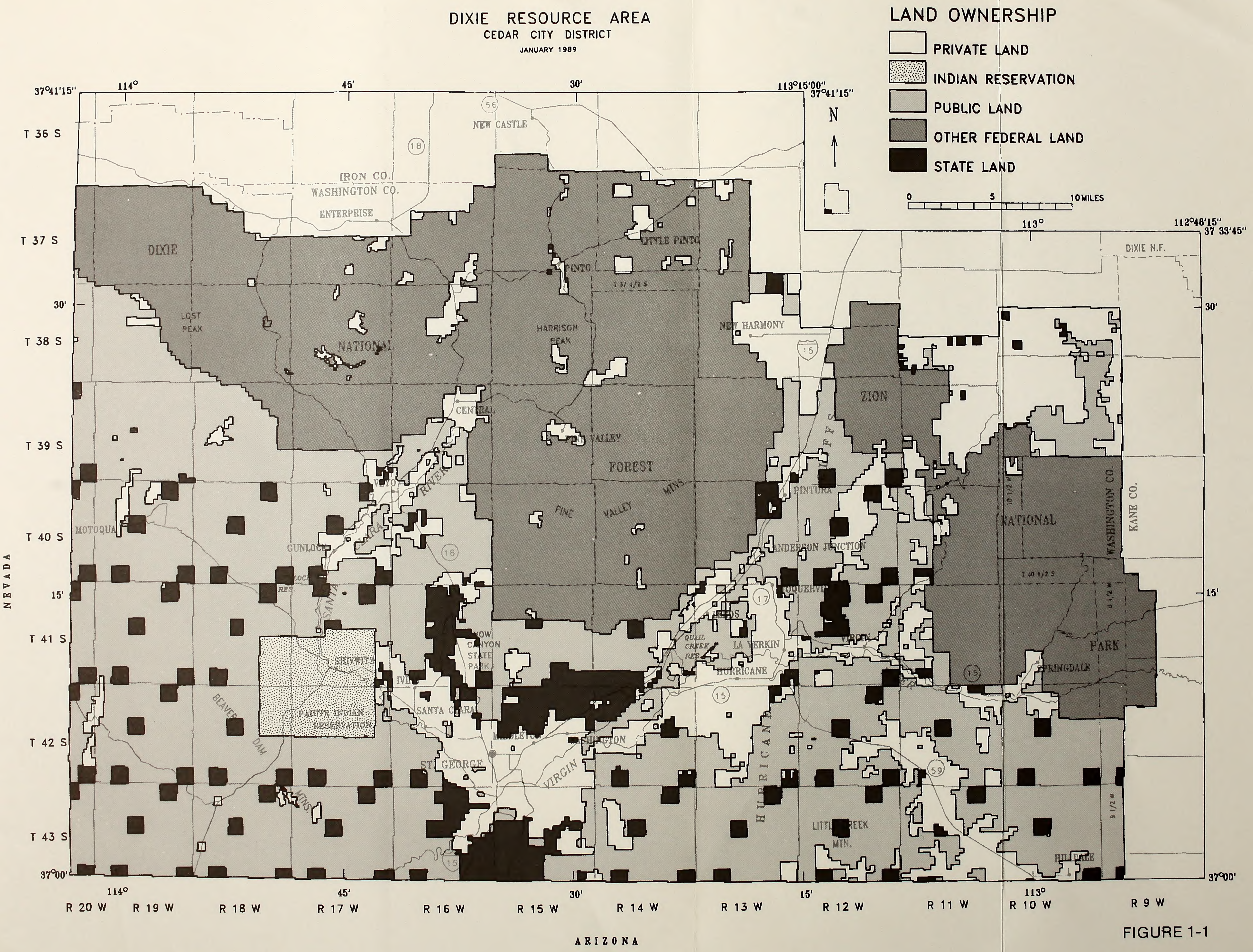

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989
LAND OWNERSHIP
PRIVATE LAND
INDIAN RESERVATION
PUBLIC LAND
OTHER FEDERAL LAND
STATE LAND
N
0
5
10 MILES
37°41'15"
114°
45'
30'
113°15'00"
37°41'15"
112°48'15"
37 33'45"
113°
30'
15'
37°00'
T 36 S
T 37 S
T 38 S
T 39 S
T 40 S
T 41 S
T 42 S
T 43 S
R 20 W
R 19 W
R 18 W
R 17 W
R 16 W
R 15 W
R 14 W
R 13 W
R 12 W
R 11 W
R 10 W
R 9 W
NEVADA
ARIZONA
IRON CO.
WASHINGTON CO.
KANE CO.
NEW CASTLE
ENTERPRISE
DIXIE
NATIONAL
FOREST
LOST PEAK
HARRISON PEAK
LITTLE PINTO
PINTO
PINE VALLEY
PINE VALLEY MTNS.
DIXIE N.F.
NEW HARMONY
ZION
NATIONAL
PARK
CENTRAL
VEYO
SANTA CLARA RIVER
MOTOQUA
GUNLOCK
GUNLOCK RES.
SHIVWITS
PAIUTE INDIAN RESERVATION
BEAVER DAM MTNS.
SNOW CANYON STATE PARK
IVINS
SANTA CLARA
MIDDLETON
ST. GEORGE
WASHINGTON
VIRGIN
PINTURA
ANDERSON JUNCTION
TOQUERVILLE
LEEDS
QUAIL CREEK RES.
LA VERKIN
HURRICANE
VIRGIN
SPRINGDALE
HURRICANE CLIFFS
LITTLE CREEK MTN.
HILDALE
T 37 1/2 S
T 40 1/2 S
10 1/2 W
9 1/2 W
56
18
15
17
59

FIGURE 1-1

Geographic Setting

The DRA lies within Washington County, Utah. Land ownership is a mixture of federal, state and private as depicted on the following table and Fig. 1-1.

Table 1-1

NUMBER OF ACRES

FEDERAL	STATE	PRIVATE	TOTAL
1,176,289	94,747	280,964	1,552,000

Source: Utah Division of State Lands, Bureau of Land Management and other federal agencies, 1978 (updated 1986 by BLM).

The Bureau of Land Management administers 628,165 acres (approximately 41 percent of the county total). Other federal land management agencies are the National Park Service (NPS), Bureau of Indian Affairs (BIA) and U. S. Forest Service (USFS).

Land ownership away from the communities is mostly scattered blocks of state and federal land surrounding a few patented ranches. The "Kolob area" north of Zion National Park is an exception with mostly patented land surrounding about 8,000 acres of BLM. Near the communities land ownership is more complex. Large blocks of state and private holdings surround tracts of BLM land networked with a web of federal rights-of-way and various "in progress" state selections and Recreation and Public Purposes (R&PP) grants.

The Dixie Planning Area contains a splendid variety of topographic features including plateaus and mesas of the Colorado Plateau Province in the eastern part and mountain ranges, sloping bench lands, and broad desert valleys of the Basin and Range Province of the western part. The major drainage is the Virgin River which flows southwestward through the southeastern part of the unit. All other drainages are tributary to the Virgin River and generally flow southward into the Virgin River. Elevations in the unit vary from about 2,500 feet along the Beaver Dam Wash and the Virgin River to about 7,500 feet in the Beaver Dam Mountains and near 6,200 feet in the Deep Creek vicinity.

The Planning Process

Resource Management Planning is used by BLM managers to allocate resources and select appropriate uses for the public lands. Regulations concerning planning are described in the 43 Code of Federal Regulations (CFR) Subpart 1610 - Resource Management Planning and supplemental planning program guidance is found in the BLM Manual Sections 1620 through 1625.

Plans are important to users of the public lands whose contributions are crucial if plans are to be responsive to public needs. Various user groups such as ranchers, miners, industries, recreationists, community planners, and state resource agencies need to know what the BLM intends to do with the public lands in order for the user groups to develop their own activities.

The primary responsibility to develop and implement a RMP is at the Resource Area level. The Bureau focuses its planning on significant multiple-use problems (issues). The BLM planning system is fully integrated with the National Environmental Policy Act (NEPA).

Nine separate planning actions occur during the development of an RMP. The nine planning actions are preceded by a preplan and Federal Register notice of intent to begin the process.

The process is summarized as follows:

Step 1 - Identification of Issues

Identification of issues orients the planning process to management problems and land use conflicts which are of the greatest importance to the manager and interested publics. Aside from BLM managers and staff, input is sought from the general public, interest groups, public land users, other federal agencies, state and local government officials, and Indian tribes.

Step 2 - Development of Planning Criteria

Planning criteria are the standards and constraints identified by the manager and interdisciplinary teams to guide development of resource management decisions. They concentrate and focus decision making, analysis, and data collection. Planning criteria are based on law and policy, local management constraints, inventory results, and public participation.

Step 3 - Inventory Data and Information Collection

As a result of Steps 1 and 2, inventory of relevant resource data is planned and conducted. Issues and criteria help identify data requirements for issue resolution. Where existing information is lacking, new inventories are performed to collect needed data.

Step 4 - Analysis of the Management Situation (MSA)

This step summarizes the facts and figures needed to develop alternatives. Resource capabilities and demands are identified for the present situation. Future demand is then identified and an analysis is made assessing the ability of the resource to meet that demand. Issues, planning criteria, and inventory data are key elements in this analysis.

Areas requiring special management such as special recreation management areas (SRMAs), wild and scenic rivers, and areas of critical environmental concern (ACECs) are brought to the attention of managers.

Step 5 - Formulation of Alternatives

Alternatives identify a range of resource uses and management practices which respond to the planning issues.

Step 6 - Estimation of Effects of Alternatives

The environmental consequences of the alternatives are analyzed and documented in this step. Documentation of impacts aids the decision maker and the public in understanding the tradeoffs and change required by each alternative and the relationships between alternatives. Consideration of physical, biological, social and economic impacts is used to select a preferred alternative and later an RMP.

Step 7 - Selection of the Preferred Alternative

The decision maker selects a preferred alternative based upon a comparison of the alternatives, their impacts, and their success at resolving the issue. This document presents that alternative as Alternative C, the preferred Alternative. The final preferred alternative selected may be one of the alternatives presented here or may be developed from the components of the various alternatives.

Step 8 - Selection of the Resource Management Plan

Comments from the public and other state and federal agencies on the draft plan and environmental impact statement are evaluated. The existing analysis, new information, workable alternatives not previously considered, or errors brought to light through review and evaluation of the draft, become the base for selecting the proposed RMP. The RMP and final EIS are published for public review, and a state and local planning consistency review. The Governor and public are allowed to protest the planning decisions as outlined in 43 CFR 1610.

Step 9 - Monitoring and Evaluation of the Plan

This step includes the implementation of the final plan that has been selected. It is in this step that site-specific activity plans are developed to guide on-the-ground activities in meeting stated management plan objectives. Monitoring provides the information for judging the effectiveness of planning decisions and the ongoing utility of the plan. Where evaluations determine the plan to be ineffective in meeting stated goals or where new conditions change such goals, the plan can be modified through the planning amendment process or through development of a new plan. Specific monitoring intervals and evaluation standards are established by the plan.

ISSUES AND CRITERIA

Planning Issues

Planning issues are major public controversy or disputes concerning the discretionary actions that BLM managers can take in managing the resources or land uses on public lands.

Management concerns are identified resource (or use) problems of a lesser nature than issues and not necessarily of controversy or dispute.

The BLM planning regulations direct issue resolution as the main thrust of the RMP/EIS. Nevertheless, land use plans are also multiple use plans and address all resources and uses.

Issues To Be Addressed In The Dixie RMP

Two issues have been identified for the DRA. Both are related to the rapid development within Washington County.

The process of determining these two issues and the many management concerns involved the interdisciplinary planning team, public participation, interagency consultation and coordination, and BLM management review.

1. Rapid urban growth and expansion in Washington County is generating problems with deterioration of resources on public lands. Controversy arises regarding the most appropriate use for the public lands because of the proliferation of the following activities:

    a. City annexation of public lands
    b. Unauthorized dumping
    c. Intensive Off Road Vehicle (ORV) activity
    d. Road construction
    e. Trespass (unauthorized uses)
    f. Overhead utilities
    g. Residential/industrial development
    h. Mineral material sites
    i. Water exploration/development
    j. Vandalism
    k. Scarification of scenery
    l. Saturation of camping facilities
    m. Water demand impacting other resource values and uses

These growth related activities conflict with traditional public land uses such as:

    a. Open range
    b. Extensive ORV use
    c. Protection of T&E habitat/cultural values
    d. Maintenance of visual and air quality classes
    e. Riparian zones
    f. Open space
    g. Extensive recreation areas

2. Recreation and tourism are important economic and social amenities for Washington County. Public land use decisions are often controversial and can enhance or detract from the quality of the recreational/tourist experience. The following situations are occurring and need resolution:

    a. Overuse of Red Cliffs Recreation Area and increasing maintenance costs have resulted in a deterioration of both the facility and the quality of the recreational experience. New recreation areas are being created as a spin-off from water projects without clear definition for development and administrative responsibility for the recreation.

b. Concentrated forms of recreation (repeated group activities) often conflict with watershed, riparian values, livestock management, protection of Threatened and Endangered (T&E) species and maintenance of Visual Resource Management (VRM) standards. The priority of recreation opportunities in relation to other resource values needs to be determined. Once determined, find solutions to allow continued use where possible without deleting other uses.

Planning Criteria

Planning criteria are the management goals and parameters within which the RMP/EIS is developed. These are used to guide the inventory and direct the RMP process. Planning criteria can reflect legal matters, policy guidelines, administrative or managerial decisions, acknowledgment of existing data, specific reasonable requests, paucity of data, and constraints. The criteria is used at four stages of the planning process: preplan, resource inventory, management situation analysis, and selection of alternative. Planning criteria are based on the following:

A. Laws, Executive Orders, and regulations.

B. The principles prescribed in BLM Manual Section 1601.08.

C. Bureau Director and State Director guidance applicable to that resource area.

D. The results of public participation and coordination with federal agencies, state and local governments, and Indian tribes.

E. Analysis of available data and information and the need for any additional inventories.

Items A and B are a matter of public record and will not be reiterated. Item "C" has been listed for each resource program in the Management Situation Analysis and is available to the public at the DRA office.

General Criteria (Parameters)

The RMP will only address BLM lands identified on the DRA base map. The plan will not address management of state or private lands or nonfederal minerals.

Management of lands or resources administered by another federal agency or management of DRA lands by another agency, BLM office, or other parties, will be in accordance with existing written agreements. Funding and personnel will be sufficient to carry out the planning effort and the selected plan alternative.

The planning horizon will be until FY2010. Prediction of future demands for public lands and resources is based on current information and the year 2010 is used as a common reference.

Planning will not assume outcome of BLM/FS land exchange or present litigation concerning Classified Multiple Use (CMU) classification or revocation withdrawals.

The planning effort will not re-address issues or re-evaluate resource data or impacts covered in the Hot Desert Grazing Management Environmental Statement (9/27/78) or the Utah BLM Statewide Wilderness Draft EIS (1/31/86).

Wilderness Study Areas (WSA) are acknowledged to be under Interim Management Policy until Congress decides to designate or release them from wilderness consideration. The alternatives in this RMP disregard WSA boundaries and determine how the land will be managed if released from wilderness review by Congress.

Coal management will not be addressed in this RMP. There are about 9,000 acres (surface and subsurface mineral estate) of the Kolob Known Recoverable Coal Resource extending into the Resource Area in T. 38 S. and T. 39 S., R. 10 W. It is estimated the average thickness is 5.5 feet with approximately 90 million tons of coal resource. This resource is complicated by restricted access, hundreds of feet of overburden and complex ownership configuration. There are no leases or other records of economic interest in developing this resource. If this situation changes, the coal unsuitability criteria will be addressed at that time.

Combined hydrocarbon leasing, oil shale and tar sands will not be addressed in this RMP because these resources are not known to be present in the resource area.

The decisions and information in the Virgin River MFP (1981) will be used in preparation of the Dixie RMP to the extent it is useful and reliable. MFP decisions that are current will be carried forward into the RMP for NEPA analysis.

Best management practices (BMP) are being developed by a Utah BLM State committee. Management actions implemented for the Hot Desert EIS will be considered BMP unless valid information dictates otherwise.

The results of public participation and other agency coordination surfaced seven criteria which are identified below with (*) and source reference.

The following criteria are program specific (goals) for this RMP effort.

Program

Fluid Minerals (Oil and Gas and Geothermal Management)	The public domain lands within the Resource Area will be managed as open or closed to leasing. (Exceptions being listed in 43 CFR subpart 3100.0-3(a)(2) and public law law 98-406 (concerning Wilderness Study Areas). These exceptions are lands not subject to lease. Open areas will be categorized as: (1) open subject to standard terms and conditions; (2) open subject to seasonal or other minor constraints; (3) open subject to "no surface occupancy" (NSO) and similar major constraints. See Appendix Glossary (Leasing Categories) for full description of fluid mineral leasing categories.

	The BLM does not have the legal authority in split estate situations to regulate how a surface owner manages his or her property. The agency does have the statutory authority to take reasonable measures to avoid or minimize adverse environmental impacts that may result from federally authorized mineral lease activities.
	The plan should revise any inconsistencies among oil, gas and geothermal leasing categories and develop consistency with other surface management determinations.
	(*) Give particular consideration to keeping all areas with medium to high potential for oil, gas, geothermal open for exploration with the least restrictive stipulations (Marathon Oil Company - 2/2/87).
Mineral Materials Management	The plan should provide community pits and common use areas to accommodate local demand for mineral materials throughout the life of the plan.
Rights-of-Way	The plan should consider establishing utility corridors coordinated with adjacent land use plans the Western Regional Corridor Study (1986), right-of-way avoidance areas, right-of-way exclusion areas and management objectives for minor rights-of-way.
	(*) Give particular consideration to establishing the Intermountain Power Project (IPP) and Navajo-McCullough rights-of-way as utility corridors one mile in width (Dept. of Water and Power, City of Los Angeles - 1/13/87).
Lower 48 Lands Program	The plan should identify various amounts of disposal lands to accommodate county growth and state selections. Exchanging lands to benefit federal programs should be the preferred means of land tenure adjustment. Therefore, acquisitions should also be identified.
	(*) The plan should identify state lands the Bureau would like to acquire for management purposes and BLM land the state would like to acquire (State of Utah Division of Lands and Forestry).
	Sale disposals should be identified by parcel and Federal Land Policy and Management Act (FLPMA) sales criteria.
	Disposal decisions, other than sales, should be kept general in order to maintain alternative means unless particular interest is identified.
	Providing public refuse stations should be considered as a means of eliminating "dumping" on BLM lands.

Withdrawal Processing and Review	The plan should consider identified withdrawal opportunities to accomplish necessary protection. These opportunities should be generated from resource management programs.
Forest Management	There are no commercial forests within the Resource Area. The plan should consider how much forest products, i.e., fuelwood, posts, landscaping plants, can be accommodated on a sustained yield basis.
Grazing Management	Livestock grazing decisions made under the Hot Desert EIS should be retained as modified by changes in regulation and policy since the publication of the EIS. Conflicts not addressed in the EIS will be resolved by identification of future monitoring needs keyed to identified resource factors.
Cultural Resources Management	The plan should give priority to the establishment of special management areas where needed to protect cultural values with identified "relevance and importance".
Recreation Resources Management	The plan should provide long-term direction for identified recreation areas. The plan should establish VRM class objectives and any adjustments to 1981 ORV zoning. (*) The plan should consider the classification of eligible sections of "wild and scenic rivers" (American Rivers - 4/22/87). (*) Give consideration to the identification of certain rights-of-way for future walking-running-biking-equestrian routes (The Walkways Center - 5/2/88).
Soil, Water and Air Management	The plan should identify and provide management objectives for critical watersheds, protection of BLM water rights, and identify stream segments needing flow determinations.
Hazardous Waste Management	The plan should identify hazardous waste conditions on public lands within the county and any need for a site in the Resource Area.
Habitat Management	The plan should identify Habitat Management Plan (HMP) objectives and evaluate the compatibility of wildlife objectives with current management. The plan should consider wildlife habitat management opportunities which would maintain, improve and expand priority species and their habitat.

	(*) Give particular consideration to developing protective objectives for migratory birds on the Coal Unsuitability Species of Importance - Under the Central Utah Coal EIS list (U. S. Fish and Wildlife Service - 2/18/87).
Endangered	The plan should identify habitat needs of T&E and sensitive species and develop creative Management management opportunities for their habitat. (*) When range allocation conflicts arise between T&E or sensitive species and domestic livestock, deference will be given to protection of the uncommon native species (The Wilderness Society - 6/14/88). (*) Give particular consideration to designating the Woodbury Desert Study Area as an ACEC. (The Nature Conservancy - 7/30/87).
Fire Management	The plan should provide for appropriate fire suppression considering resource values and suppression factors.
Engineering Services	The plan should provide a transportation map and identify needed easements.

CHAPTER 2

DESCRIPTION OF AFFECTED ENVIRONMENT

Air Quality

The following chapter describes both the physical and managerial environment for the DRA.

Air quality over the DRA is considered to be good to excellent depending upon seasonal and diurnal variations. Visibility from the St. George Airport on an average day is about 100 miles. The area is characterized by limited industrial activity and there are no large emission sources for air pollution. The area is defined as an attainment area for air pollutants. All areas within the DRA currently meet the pollution limits of the National Ambient Air Quality Standards (NAAQS). An attainment area is protected from air quality deterioration by the Prevention of Significant Air Quality Deterioration regulations (PSD). The area is classified under PSD as a Class II area which allows air quality deterioration associated with moderate, well controlled growth. Zion National Park within the DRA is classified as Class I under the PSD. Class I areas allow practically no air quality deterioration over the existing baseline. Class I areas also have protection of atmospheric visibility and other air quality related values (AQRVs).

Periodic deterioration of air quality in the DRA does occur. It has been determined by studies by the State of Utah, Environmental Protection Agency, and the National Park Service that the greater portion of this impact results from long-range, regional pollution transported in Utah from sources in the southwestern portions of the United States.

The only air quality regulation directly related to BLM management activities at the present time is the requirement to obtain an agricultural open burning permit for controlled rangeland burns (Wagner 1987). The permit is either issued or denied on the basis of a pollution dispension index. The permits are issued on a day-to-day basis.

Climate

The climate in Washington County is semi-arid, characterized by low precipitation, low humidity, bright sunshine, and wide diurnal variations in temperature. Climatic conditions at individual locations are strongly dependent on elevation. Higher elevations are characterized by lower temperatures and greater precipitation. The area is characterized by hot summers and relatively short, mild winters. Summer high temperatures routinely exceed 100°F while winter minimum temperatures rarely fall below 20°F. The average frost-free period ranges from 150 to 200 days depending on elevation. Average annual precipitation varies from less than eight inches in the valleys below 3,000 feet to over 16 inches at elevations of 6,000 feet or higher. Maximum precipitation amounts occur in winter as a result of Pacific storms and in late summer as a result of thunderstorm activity.

Soils

Dixie Resource Area soils were described in two separate surveys. The majority of the Resource Area was surveyed and published in the Washington County Soils Survey, 1977. The remainder of the soil within the area is described in the Iron-Washington County survey which is currently a draft document. These surveys provide specific information on soil characteristics such as texture, depth, slope, salinity, and erosion susceptibility. In addition, the surveys contain information on soil use and management. Critical soils with high erosion capability are displayed in Fig. 2-1, Critical Soils.

Soils in the area are predominantly alluvial in origin. In addition, there are some small areas derived from coarse-grained igneous rock that have coarse textures and are normally well drained.

Soils formed in the desert basins of this area are limited to their development and are typically recent in origin. Their profiles reflect the character of the parent material from which they were derived and their limited productive capability is a result of low precipitation and subsequent low organic matter content. Desert soils in this area are generally coarse textured and may have a calcareous hardpan layer beneath the surface. On steep slopes in the mountainous terrain of this area, soils are typically shallow, have a coarse, gravelly texture, and are well drained.

At higher elevations where climatic conditions are favorable, soils typically contain more organic matter and are more productive than at lower elevations. These soils are better developed than soils formed in the deserts and are normally formed from alluvial deposits originating from parent material in nearby mountains. In the Resource Area, these soils may also be underlain by a hardpan.

Moderately saline soils and/or parent material derived from the Moenkopi Formation occur on 91,405 acres within the DRA. These saline sources occur on cliff faces, steep slopes, disected landscapes and as alluvial fans. Gypsum is the major soil occurring in these units. It is common on these areas to find a thin layer of soil overlying geologic units of mud, silt or sandstone interbedded with layers of nearly pure gypsum. Soil material occurring on steep slopes and/or cliff faces is generally unstable with both high per unit runoff and sediment yields in excess of three acre feet/square mile per year.

Gypsum derived soils occurring on fans and rolling and broken lands are generally stable due to dryptogamic cover approaching 70 percent with sediment yields of one acre foot/square mile/year. However, once disturbed, these soils will produce sediment yields greater than two acre feet/square mile/year. Surface disturbance by ORVs is occurring in the Red Bluff area west of Bloomington and at Warner Ridge east of Bloomington Hills.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

CRITICAL SOILS

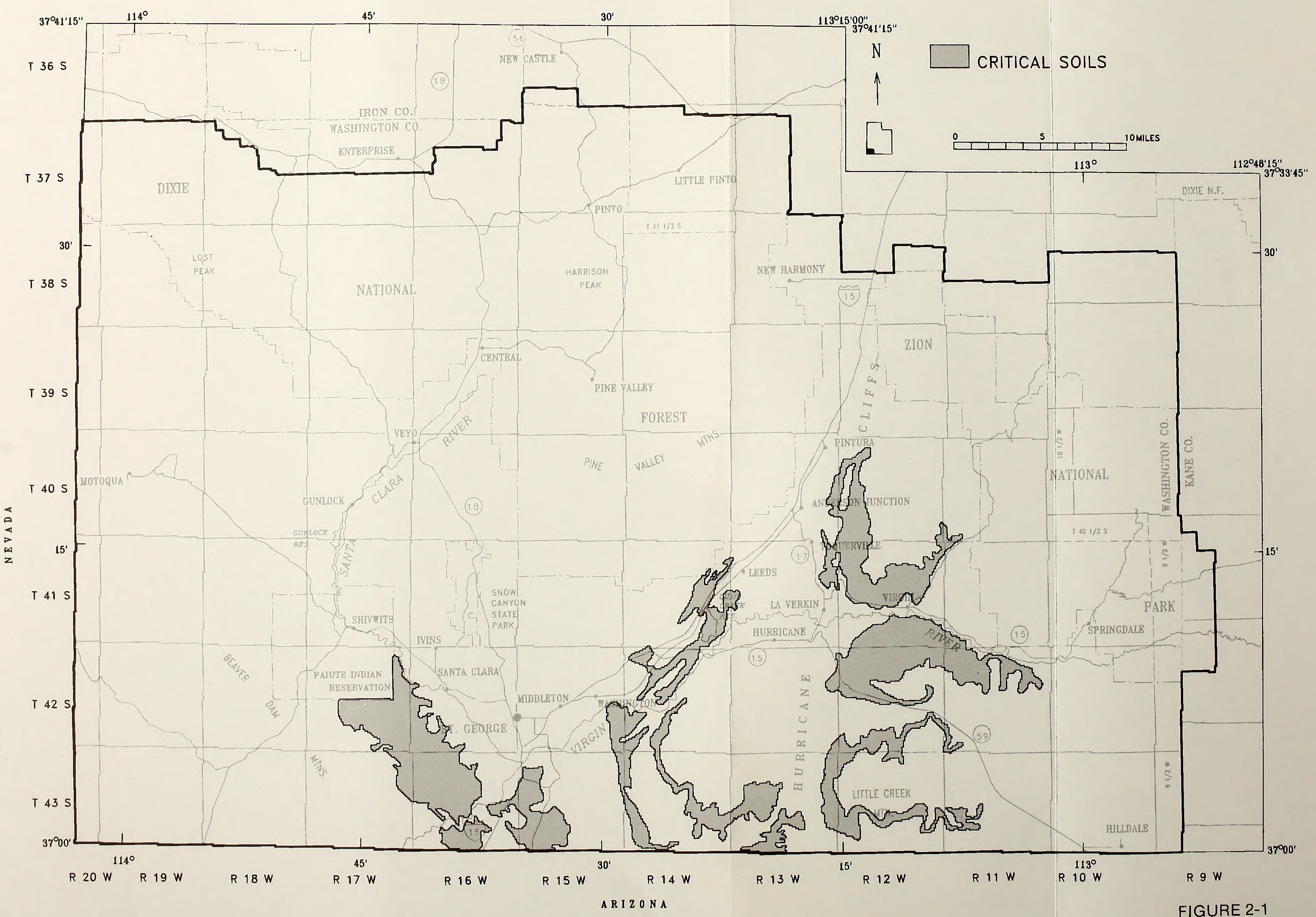


FIGURE 2-1

No reliable watershed condition data exists for the DRA. A relative condition analysis was conducted in 1968 as part of the Phase I watershed inventory. Because of the age of the original data, it was not used in this RMP. A sediment yield survey using the Pacific Interagency Committee (PSIAC) was conducted in 1975 to 1977. This data was not used because of its age and the fact that no attempt was made by the original surveyors to determine those areas of accelerated erosion versus these areas eroding at geologic rates.

Water

All of the DRA is within the Virgin River Drainage of the lower Colorado River Basin. The major portion of the headwaters arise in the Pink Cliffs area of the Markagunt Plateau, the Paunsaugunt Plateau, and the Pine Valley Mountains. Two major forks, the North Fork and East Fork, join in eastern Washington County to form the Virgin River, which travels through Utah, Arizona, and Nevada before emptying into Lake Mead. The other major drainage in the Basin is the Santa Clara River, which meets the Virgin River just south of St. George. There are ten perennial channels and hundreds of intermittent channels that drain water from the Resource Area. Flows tend to fluctuate widely, with low flow in late summer and early fall, and highest average flows in April and May. Flows on the Virgin River have ranged from 20 to 20,000 cfs. Average annual flow of the Virgin River, as measured at the Bloomington gaging station, is 239,890 acre/feet (approximately 60,000 ac. ft. are diverted for irrigation use above the gaging station).

Water resources in the area are somewhat unique as all of the major streams have their headwaters in sub-alpine zones. This creates a situation where water is produced in greater quantity than would normally be expected in such an arid climate. This relatively abundant water supply has become the basis for several important resource values (Fig. 2-2).

Water, originating in part on public lands, flows through and becomes an integral aspect of Zion National Park, which is enjoyed by some 2,000,000 visitors annually. In higher elevations, the streams support cold water fisheries, in lower elevations the Virgin River is habitat to the endangered Woundfin Minnow, the proposed to be listed Virgin River Chub and the sensitive Virgin River Spindace.

There is a large and growing demand for water to meet municipal, agricultural, and industrial uses in the county. Water need has increased considerably in the past decade and there is every indication this trend will continue into the future. Current annual water allocations and applications to appropriate water exceed annual surface supply (300,000 ac. ft.) and ground water (155,000 ac. ft.) supply by an estimated 200,000 ac. ft.

Public lands have been used as reservoir sites to store peak and winter flows to meet population growth requirements. The major project is Quail Creek Reservoir. This reservoir was constructed on Leeds Creek just north of its confluence with the Virgin River. Most of the water stored in the reservoir originates from the Virgin River, which is diverted into a 60 inch diameter pipe some 15 miles to the east near the the Town of Virgin. Such diversion removes water from the river which makes it difficult, or at times impossible, to manage more traditional Bureau riparian area uses such as wildlife and

No reliable measured condition data exists for the RMA. A relative condition analysis was conducted in 1968 as part of the Phase I Watershed Inventory. Because of the age of the original data, it was not used in this RMP. A sediment yield survey using the Pacific Interagency Committee (PSIAC) was conducted in 1976 or 1977. This data was not used because of its age and the fact that no attempt was made by the original surveyors to determine those areas of accelerated erosion versus those areas eroding at geologic rates.

Water

All of the RMA is within the Virgin River drainage of the lower Colorado River Basin. The major portion of the headwaters arise in the Pink Cliffs area of the Markagunt Plateau, the Paunsaugunt Plateau, and the Pine Valley Mountains. The major forks, the North Fork and East Fork, join in eastern Washington County to form the Virgin River, which travels through Utah, Arizona, and Nevada before emptying into Lake Mead. The other major drainage in the Basin is the Santa Clara River, which meets the Virgin River just south of St. George. There are ten perennial channels and hundreds of intermittent channels that drain water from the Resource Area. Flows tend to fluctuate widely with low flow in late summer and early fall, and highest average flows in April and May. Flows on the Virgin River have ranged from 20 to 20,000 cfs. Average annual flow of the Virgin River, as measured at the Bloomington gaging station, is 205,000 acre/feet (approximately 60,000 ac. ft. are diverted for irrigation use above the gaging station).

Water resources in the area are somewhat unique as all of the major streams have their headwaters in high-rainfall zones. This creates a situation where water is produced in greater quantity than would normally be expected in such an arid climate. This relatively abundant water supply has become the basis for several important resource values (Fig. 2-5).

Waters originating in part on public lands, flows through and becomes an integral aspect of Zion National Park, which is enjoyed by some 2,000,000 visitors annually. In higher elevations, the streams support cold water fisheries; in lower elevations the Virgin River is habitat to the endangered Woundfin Minnow, the proposed to be listed Virgin River Chub and the sensitive Virgin River Spinedace.

There is a large and growing demand for water to meet municipal, agricultural and industrial uses in the County. Water need has increased considerably in the past decade and there is every indication this trend will continue into the future. Current annual water allocations and applications to appropriate water exceed annual surface supply (300,000 ac. ft.) and ground water (165,000 ac. ft.) supply by an estimated 200,000 ac. ft.

Public lands have been used as reservoir sites to store spring and winter flows to meet municipal and irrigation requirements. The major project is Quail Creek Reservoir. This reservoir was constructed on Quail Creek just north of its confluence with the Virgin River. Most of the water stored in the reservoir originates from the Virgin River, which is diverted into a 60 inch diameter pipe some 15 miles to the east near the town of Virgin. Such diversion removes water from the river which makes it difficult, or at times impossible to manage more traditional instream flow use areas such as wildlife and

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

WATER RESOURCES

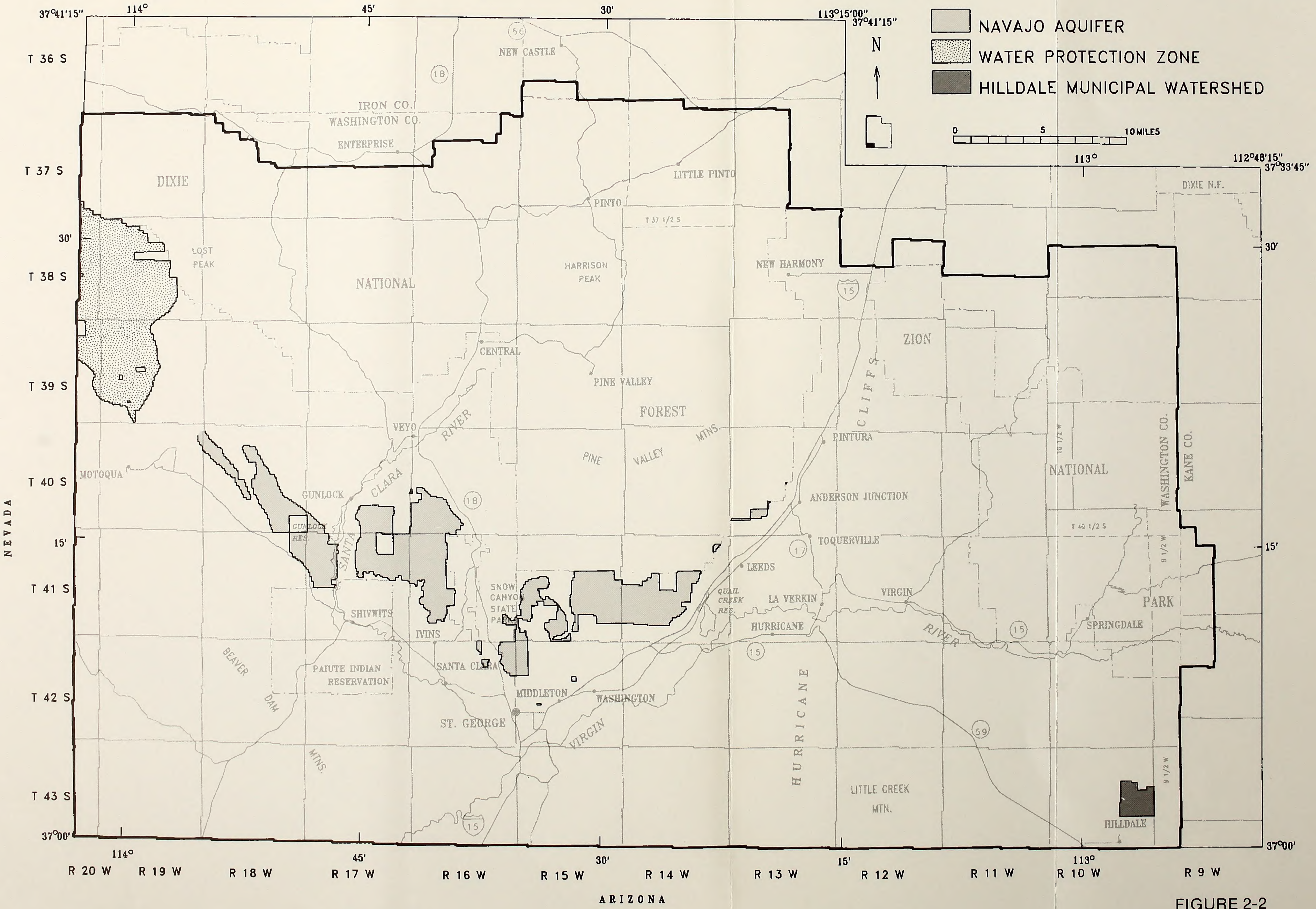


FIGURE 2-2

fisheries habitat, livestock grazing and recreation. As population demands increase, similar projects would remove water from the stream channels and divert it to downstream users, complicating riparian area management.

Because of the huge demand for water in the DRA, private parties have been approaching the Bureau requesting the water from springs located on public land to supply developments on adjacent private land. This condition is anticipated as population increases.

Water rights within the Basin area are presently being adjudicated by the State of Utah. In this adjudication, the Bureau has filed claims for livestock, wildlife, and recreation on 11 wells, 113 reservoirs, 224 springs, and one pond. These filings are sufficient to meet Bureau needs for livestock and wildlife consumption as well as for the developed recreation site at Red Cliffs. Additional water necessary to meet these needs will be acquired by application to the State of Utah Division of Water Rights.

Groundwater in the Basin occurs in both areas of alluvial material and within the Navajo sandstone geologic unit. Total annual groundwater recharge is estimated to be 155,000 acre/feet which is approximately equal to average annual discharge from springs and withdrawal from wells.

The Navajo sandstone outcrop areas, from north of Washington City west to Snow Canyon State Park, are important for municipal water supply. This water is pumped for use in Washington and St. George cities. Water from these sources is the main supply for the communities. Quality is very good with total dissolved solids (TDS) of 500 mg/l or less.

The 100-year floodplain has been determined and mapped as the major drainage within the DRA. These floodplains are delineated with riparian habitat on Fig. 2-3. Mapping of the floodplains was completed to help assure that areas proposed for sale, or floodplains which might be impacted by management actions, could quickly be determined.

Water quality is best in the headwaters and progressively deteriorates the further downstream the water moves. The major quality problems in the area include high sediment loading, total dissolved solids, excessive hardness, arsenic, lead, cadmium, and mercury. Sediment loading is flow dependent with highest peak yields occurring during snowmelt and thunderstorm runoff while lowest yields occur during periods of low flow. Sediment loading in the Virgin River has been measured as high as 1,930,000 tons per day. Salt (TDS) is introduced into the river system from LaVerkin Springs (100,000 tons/year), from runoff through moderately saline geologic units and soils, and from agricultural irrigation return flows.

The State of Utah has attached designated beneficial uses to the perennial waters in the DRA. The designated stream segments are described in Table 2-1.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

RIPARIAN HABITAT

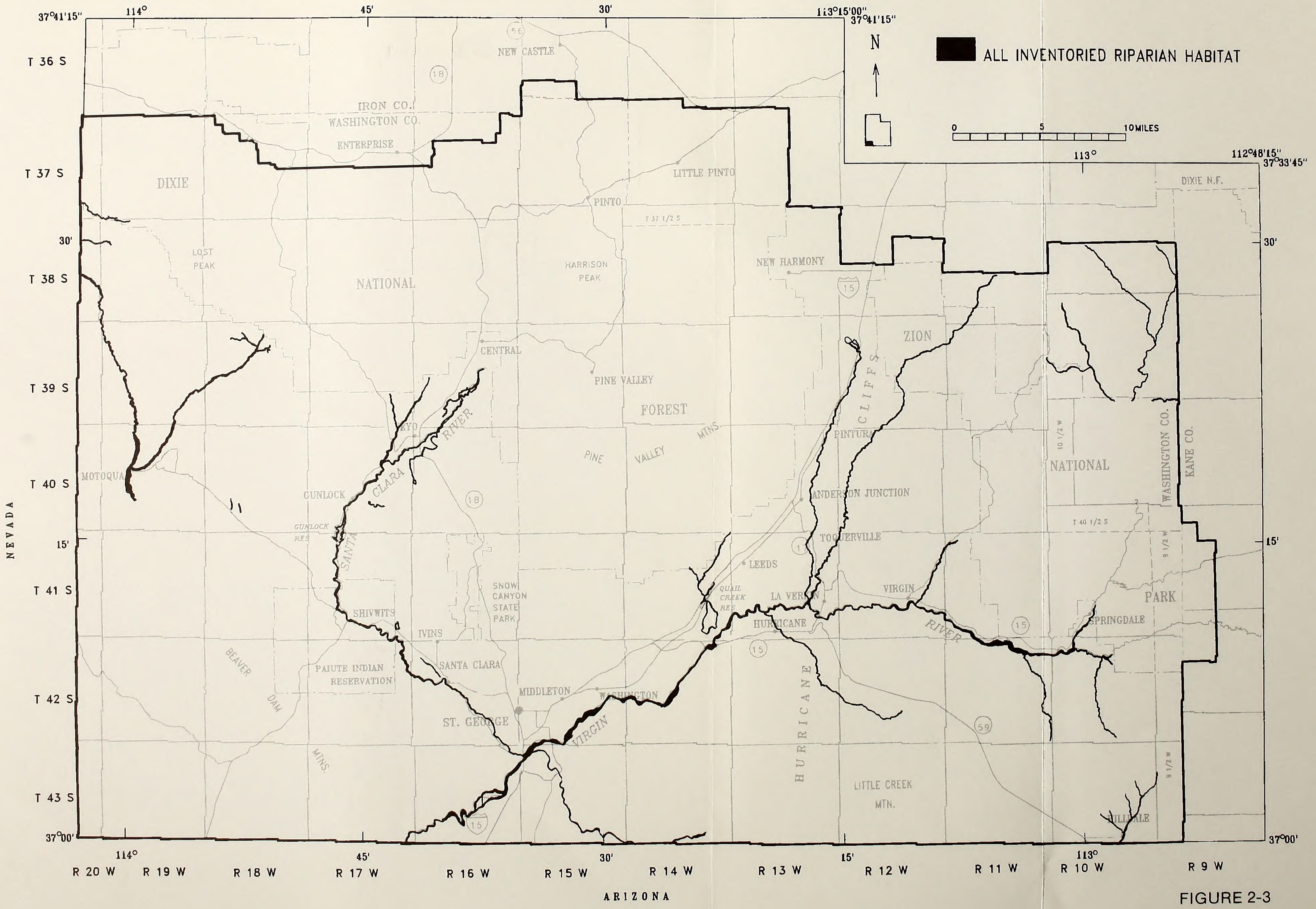


FIGURE 2-3

Table 2-1

Stream segments within the DRA and their Water Quality Beneficial Use Designations.

Stream Segment	Classification
Virgin River and Tributaries from Arizona Stateline to Quail Creek Reservior Diversion	Warm Water Fisheries (3C) Agriculture (4)
Santa Clara River From Gunlock Reservior to Headwaters	Domestic (1C) Cold Water Fisheries (3A) Agriculture (4)
Virgin River and Tributaries from Quail Creek Reservior Diversion to headwaters	Domestic (1C) Warm Water Fisheries (3C) Agriculture (4)

Bureau samples taken from 1976 to 1981 indicated the possibility that some of the maximum tolerance levels for constituents such as lead, mercury, cadmium, arsenic, TDS and hardness had been exceeded. Furthermore, intensive monitoring is needed to determine quality problems (if any), and their potential causes.

The West Fork Beaver Dam Wash is a unique resource within the DRA. Unlike most of the drainages in its upper seven mile reach, it flows through granitic geologic units, thus, maintaining good quality. The stream supports both cold and warm water fisheries, has high quality recreation experiences as well as providing water for agricultural uses in the Town of Motoqua. Also, the cities of St. George, Santa Clara, and Ivins have been investigating the opportunity of developing ground water fields that are directly fed by the Beaver Dam Wash as municipal sources. The watershed of the East Fork Beaver Dam Wash is the site of a major gold mining cyanide leaching operation and associated secondary exploration for additional gold sources. Currently, exploration has occurred across the watershed divide into the West Fork Beaver Dam Wash.

Riparian Areas

Riparian vegetation has developed along both forks of the Virgin River, the Santa Clara River, Fort Pearce Wash, and West Fork Beaver Dam Wash as well as several smaller perennial streams (Fig. 2-3). A total of 37 miles and 6,544 acres of riparian vegetation occur on public land within the DRA representing about .01 percent of the public lands. The plant species include willow, cottonwood, cattails, and sedges as well as several perennial grasses. These areas are critical for the maintenance of healthy wildlife populations because they provide all the necessary habitat components. The contrast between riparian vegetation and surrounding vegetation increases habitat diversity through the "edge effect". The riparian zones also provide travel lanes for large and small animals and links between habitat types. These areas are very important as winter resting areas for waterfowl along the north-south flyways because the waters remain unfrozen. A few riparian zones are degraded by livestock grazing and trampling, ATV travel which destroys vegetation, and dewatering of streams which causes loss of some vegetation. Fig. 2-4 displays the habitat diversity provided by riaprian areas in the DRA.

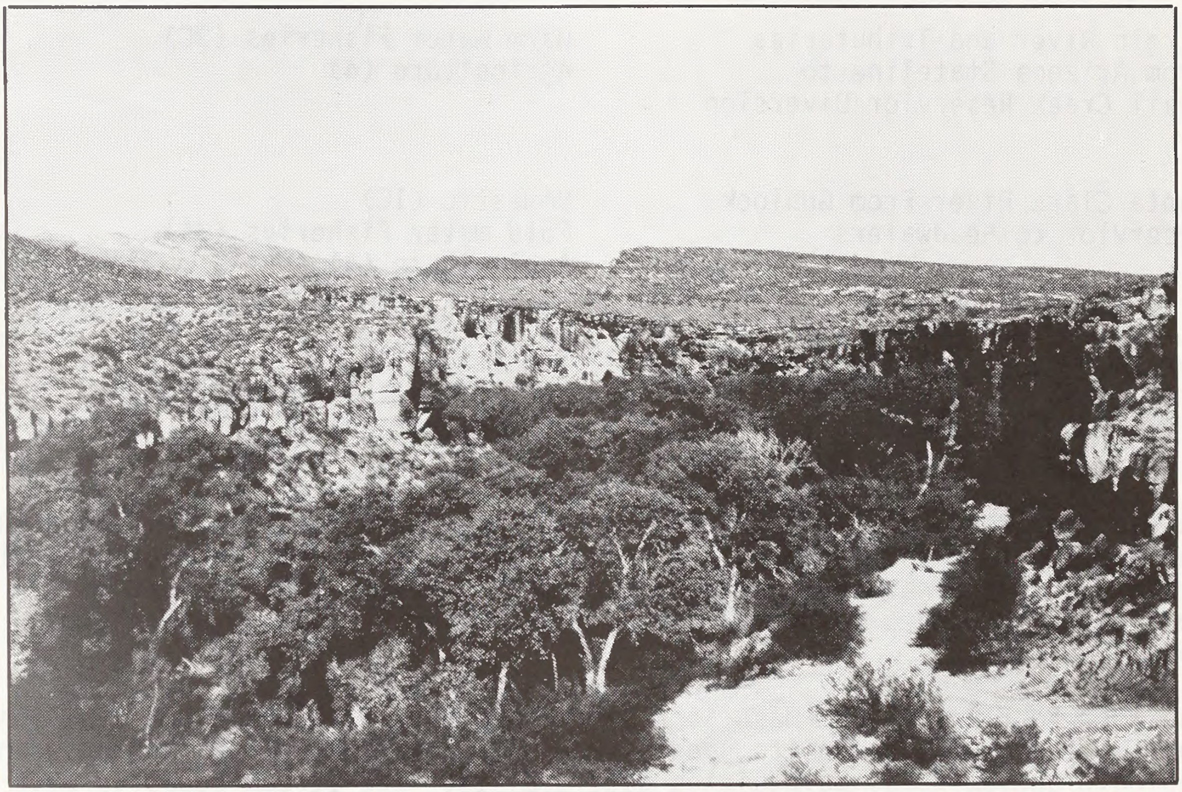


Fig. 2-4 Riparian area along the Santa Clara River provides habitat diversity.

Vegetation

Washington County is located within the Colorado Plateau and Lower Basin and Range physiographic regions and is further subdivided into Juniper-Pinyon Woodland, Creosote Bush, and Saltbush-Greasewood zones (Kuchler 1975). The diversity of soils, temperature, precipitation, elevation, and aspect as well as past and existing land uses have resulted in a diversity of vegetation types and plant species. Vegetation that occurs below an elevation of approximately 4,000 feet is generally representative of the Upper and Lower Sonoran life zones.

Climatic conditions are harsh and many of the species have adapted to higher temperatures and lower precipitation through special adaptations such as smaller leaves, rapid growth during periods of moisture, increased water storage capability, and dormancy during dry periods. Above 4,000 feet the environment is cooler and less arid and the vegetation is more typical of areas to the north in the Great Basin and Colorado Plateau.

Vegetation of Washington County has been placed into 14 types based on the dominant species in terms of overall aspect. Often, there is little difference in the composition of two similar vegetation types other than the percentage of dominant species. Vegetation types, acreage of each type, their common plant species, and endangered or candidate plant species that occur in each type are shown in Table 2-2.

Fluid Minerals

Oil and Gas: Known resources within the Resource Area are not significant. The potential, based on direct drilling evidence has been determined and can be found on Fig. 2-5, pg. 24. High potential for oil and gas occurs on 6,940 acres, moderate potenital on 71,530 acres and the remaining 549,695 has low potential.

Since 1976, only 12 applications for permission to drill have been received by the Bureau. Currently there are some 282,000 acres under lease, including BLM administered leases on Forest Service lands. Total production figures show that approximately 206,500 barrels of oil and 1,500 million cubic feet of gas have been produced from these leases between 1907 and 1976. Lease activities are expected to remain at about the same level in the DRA unless a significant find is made. Rulemaking as a result of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 requires that any future leasing will be offered at competitive oral auctions with a minimum bid of $2 per acre.

Two oil fields have been designated in the east-central part of the unit: the Virgin and Anderson Junction Fields. The Virgin Oil Field is located in a known geologic structure of approximately 2,400 acres. The first well in the Virgin Field was drilled in 1907. Initial interest in drilling in the area resulted from the presence of several oil seeps and outcrops of oil sands in the vicinity. Since 1907, some 140 wells have been drilled of which approximately 53 achieved mentionable production. Productive depths range from 475 to 800 feet, the average being 550 feet. Total field production up to 1976 is estimated at 205,000 barrels, from an estimated proven area of 680 acres. There is no current production occurring from the Virgin Field.

TABLE 2-2
Vegetation Types in Washington County, Utah

Vegetation Type	Acreage	Percent of Total Acres	T/E & Cand. Spp.	Principal Species
Joshua Tree	91,145	12.87		Yucca brevifolia, Larrea tridentata, Franseria dumosa, Hymenoclea salsola, Krameria parvifolia, Prunus fasciculata, Gutierrezia sarothrae, Ephedra nevadensis, Coleogyne ramosissima
Creosote Bush	2,761	0.39		Larrea tridentata, Ambrosia dumosa, Ephedra nevadensis, Krameria parvifolia, Lycium andersonii, Bromus rubens
Desert Shrub	81,648	11.53	2/, 5/ 6/, 10/	Ambrosia dumosa, Coleogyne ramosissima, Ephedra nevadensis, Gutierrezia sarothrae, Prunus fasciculatum, Purshia mexicana, Salvia dorrii
Blackbrush	75,202	10.62	2/, 5/	Coleogyne ramosissima, Ambrosia dumosa, Ephedra nevadensis, Gutierrezia sarothrae
Saltbush	17,779	2.51	1/, 3/ 10/	Atriplex confertifolia, Ambrosia dumosa, Psorothamnus fremontii, Lycium andersonii, Ephedra torreyana, Atriplex canescens
Half Shrub	24,493	3.46		Gutierrezia sarothrae, Chrysothamnus viscidiflorus
Grass	29,090	4.11		Agropyron cristatum, Agropyron desertorum, Hilaria jamesii, Hilaria rigida, Bouteloua gracilis
Annuals	3,640	0.51		Bromus tectorum, Bromus rubens, Salsola iberica
Riparian	6,655	0.98	7/	Populus fremontii, Salix gooddingii, Salix exigua, Chilopsis linearis, Acer negunda, Baccharis glutinosa, Baccharis emoryi, Tamarix ramosissima
Sagebrush	50,596	7.14		Artemesia tridentata, Artemesia filifolia, Chrysothamnus nauseosus, Coleogyne ramosissima, Gutierrezia sarothrae, Quercus turbinella, Rhus aromatica, Prunus fasciculata, Purshia tridentata
Mountain Shrub	96,906	13.68		Quercus turbinella, Quercus gambelii, Ceanothus greggii, Amelanchier utahensis, Artemesia tridentata, Purshia tridentata, Rhus aromatica, Arctostaphylos patula, Fraxinus anomala, Cercocarpus montanus, Purshia mexicana
Pinyon-juniper	218,940	30.92	4/, 8/ 9/, 11/ 12/	Juniperus osteosperma, Pinus edulis, Quercus turbinella, Ceanothus greggii, Coleogyne ramosissima, Artemisia tridentata, Purshia tridentata, Purshia mexicana, Amelanchier utahensis

Table 2-2 (Continued)

Vegetation Type	Acreage	Percent of Total Acres	T/E & Cand. Spp.	Principal Species
Conifer	766	0.11		*Abies concolor*, *Pseudotsuga menziesii*, *Pinus ponderosa*, *Cercocarpos ledifolius*, *Amelanchier utahensis*, *Quercus gambelii*
Aspen-Grass	274	0.04		*Populus tremuloides*, *Symphoricarpos oreophilus*, *Poa pratensis*, *Bromus inermis*, *Dactylis glomerata*, *Elymus canadensis*
Barren	8,012	1.13		Areas generally devoid of vegetation: sand dunes and slickrock.
TOTAL		100.0		

1/ - Arctomecon humilis.
2*/ - Echinocereus engelmannii var. purpureus
3/ - Pediocactus sileri.
4/ - Asplenium andrewsii (A. adiantum-nigrum)
5/ - Astragalus ampullarius
6/ - Astragalus holmgreniorum
7/ - Circium virginensis
8/ - Erigeron sionis
9/ - Heterotheca jonesii
10/- Phacelia cephalotes
11/- Selaginella utahensis
12/- Sphaeromeria ruthiae

* (*Federal Register* 1/19/89, Vol. 54, No. 12. Fish and Wildlife Service proposed delisting of this species from T & E status)

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

FLUID MINERALS POTENTIAL (Leaseable)

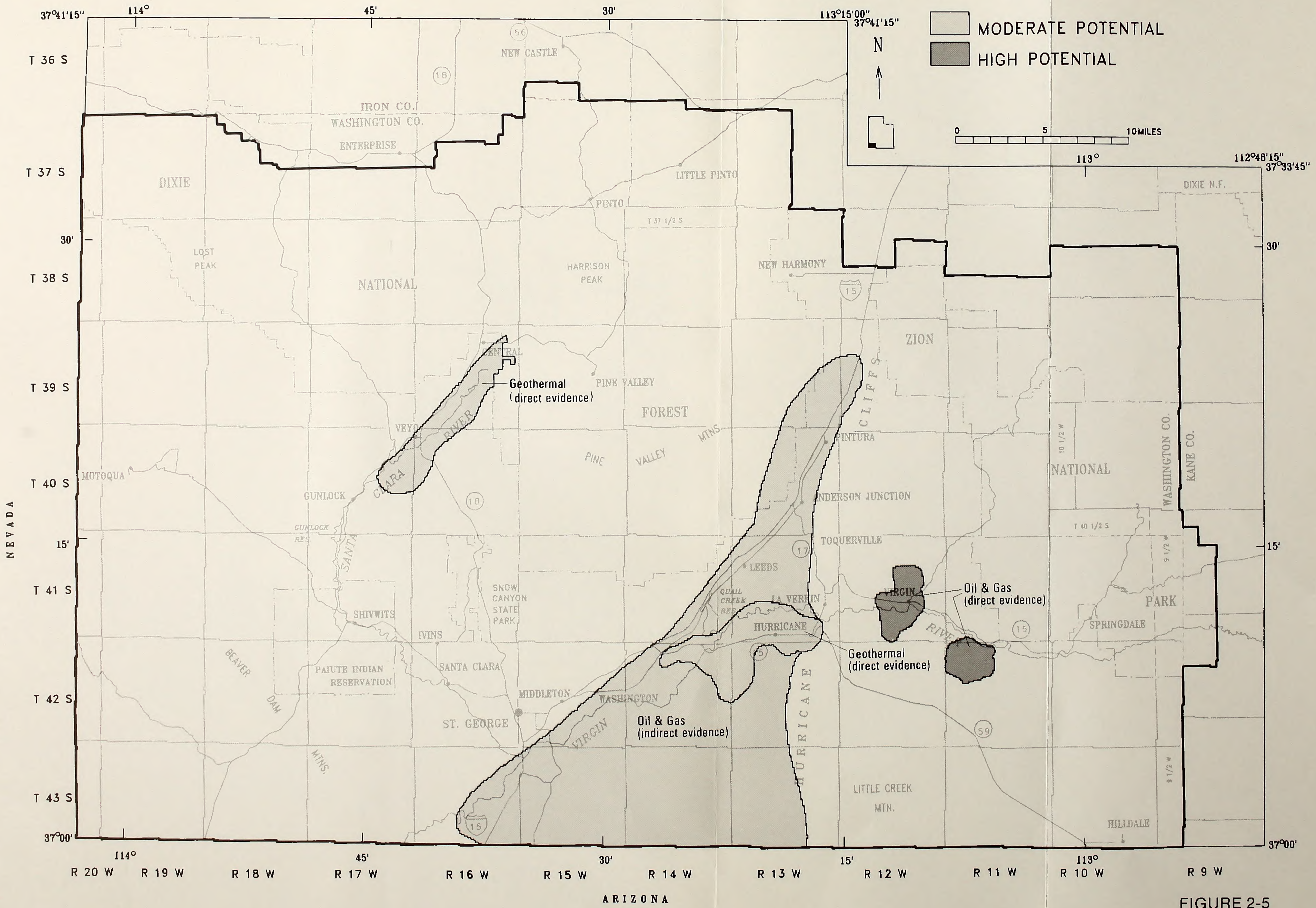


FIGURE 2-5

The Washington County Water Conservancy District is currently analyzing the feasibility of placing a dam on North Creek approximately one mile north of the Town of Virgin. If built, the resulting reservoir would inundate the Virgin Field. Future exploration and development would be on lands outside the reservoir boundaries should the dam construction be permitted. This proposal will be analyzed seperately when an application is received.

The Anderson Junction Field lies north of the Virgin Field. The first well was drilled in 1968. Since 1968, a total of five wells have been drilled. Total field production as of 1971 is 1,440 barrels of oil. Production from the Anderson field ceased in 1971.

Other favorable structures in the unit are the Virgin anticline in the south-central part, the Shebit anticline in the southwest, and a small, unnamed anticline in the northeast. Three domal structures, the Harrisburg, the Washington, and the Bloomington, are found along the Virgin anticline. Eight wells have been drilled in the Bloomington structure. One well drilled to a depth of 4,114 feet penetrated the Callville limestone and found questionable oil shows. Another well drilled to a depth of 6,347 feet, found pinpoint oil shows. On the Shebit anticline, only three shallow wells have been drilled. No oil shows have been reported from these wells.

Based on the facts that both fields are no longer producing and that no other wells drilled have produced meaningful shows, the oil and gas potential in DRA is assumed low.

Geothermal: There are two heat source areas within the Dixie Resource Area (Fig. 2-5). These are Veyo Hot Springs, located northeast of the Town of Veyo, and LaVerkin Hot Springs in the Town of LaVerkin. The temperatures of these hot springs vary from 69 to 189°F. (Mundorf 1970) and are believed to derive their heat from volcanic flows in the area.

During 1981, Phillips Petroleum drilled three temperature gradient holes near Veyo to a depth of 500 feet. These holes were monitored for a year by Phillips, then abandoned and the leases allowed to expire. Currently there are no Known Geothermal Resource Areas (KGRA) or leases within the Resource Area.

Reasonable Foreseeable Development Scenerio

During the past 82 years, a total of 143 wells have been drilled in the DRA. Only one commercial field, the Virgin Oil Field, has been discovered. This field has produced 205,000 barrels of oil since production began in 1907 from an area of 680 acres. There have been marginal efforts to expand this field with exploratory wells since 1968, a total of five wells have been drilled a few miles north of the Virgin field. Total production has been 1,440 barrels of oil.

Based on past drilling history, it is expected that exploratory wells will continue to be drilled in the DRA at the rate of about one well per year for the foreseeable future. The success rate for finding commercial quantities is anticipated to be low, no more than ten percent, based on the average success rates for wildcat wells in the United States.

Utilizing past trends and anticipated future interest in drilling in the DRA, the following is the projected surface disturbance that could occur over a 20-year period.

1. 20 exploratory wells (1 per year x 20 years)
2. 120 acres disturbance from well sites (6 acres/well x 20 wells)
3. 100 acres disturbance from access roads
   (5 acres/mi. x 1 mi. average access road length)
4. 220 acres total disturbance

The probability of field development and subsequent construction and surface disturbance is extremely low in the DRA and impacts from such development will not be speculated upon in this document. Further environmental analysis will be conducted in the event of field development.

Fluid Mineral Leasing Categories

The current leasing policy for fluid mineral uses a system of land categorization designed to protect natural and human resources, while providing the maximum opportunity for exploration and development. The four categories utilized include: (1) open with standard stipulations, Category 1; (2) open with special stipulations, Category 2; (3) open with no surface occupancy, Category 3; and (4) closed or suspended to leasing, Category 4. All WSA and the designated wilderness area are closed by statute from leasing. Current fluid mineral categories are shown on Fig. 2-6. Acreage is shown as follows:

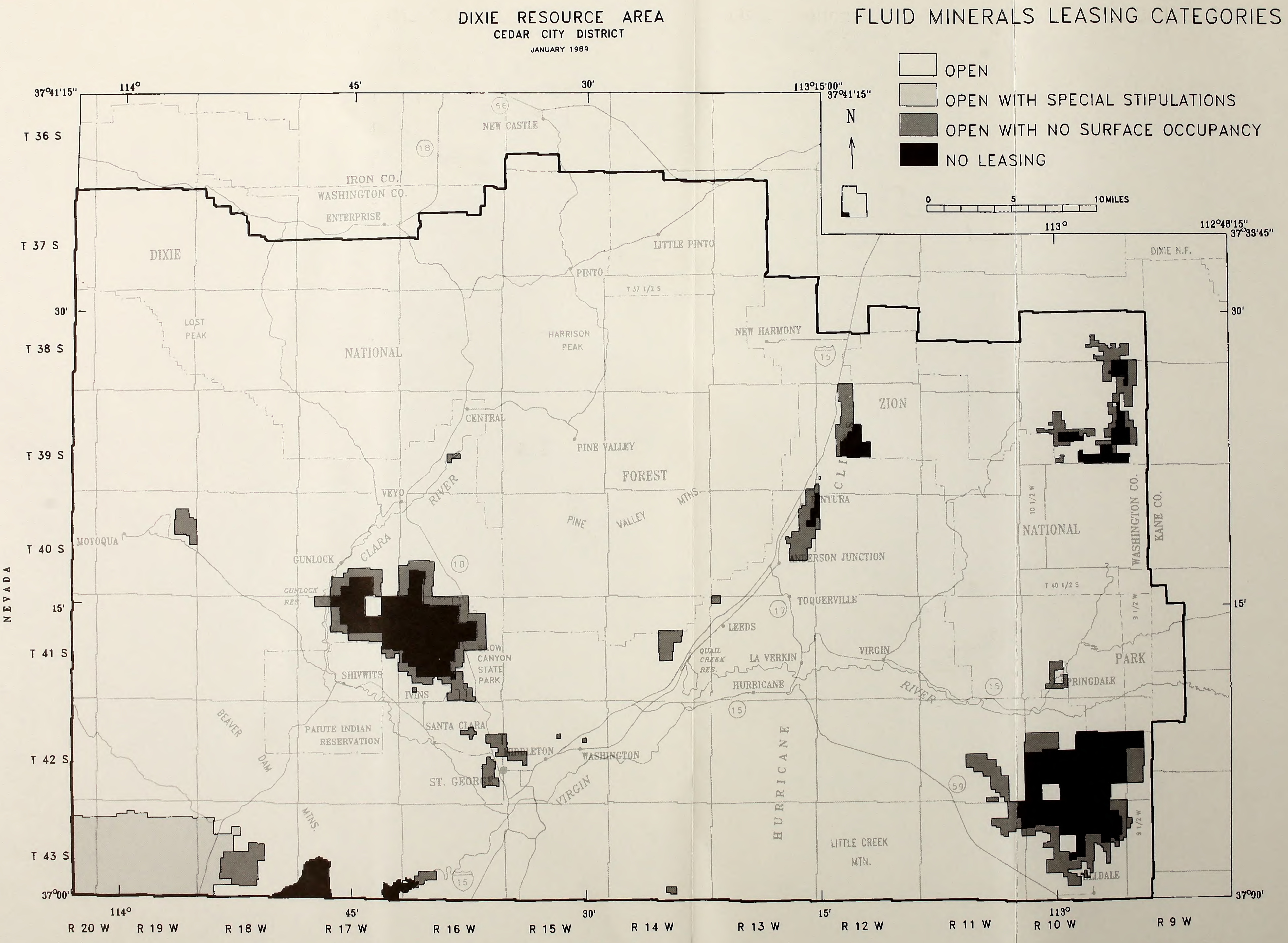
Current Fluid Mineral Leasing Categories

Category		Acres	% of Area
1	Open to Leasing	460,615	70
2	Special Stipulations	26,700	4
3	No Surface Occupancy	40,585	6
4	Closed to Leasing* (administrative)	45,880	7
	(Wilderness statute)	94,700	13
	TOTAL	*668,480	100

* There is overlap between administrative and statutory acreage

Locatable Minerals

All public land is open to mineral entry and development unless previously withdrawn. Mineral exploration and development on public land will be regulated under 43 CFR 3800 to prevent unnecessary or undue degradation of the land. Fig. 2-7, pg. 28 displays known mineral potential in the DRA based on direct evidence from mineral activities and indirect evidence from geological interpretation.


DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

FLUID MINERALS LEASING CATEGORIES

☐ OPEN
░ OPEN WITH SPECIAL STIPULATIONS
▒ OPEN WITH NO SURFACE OCCUPANCY
■ NO LEASING

FIGURE 2-6

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

LOCATABLE MINERALS POTENTIAL

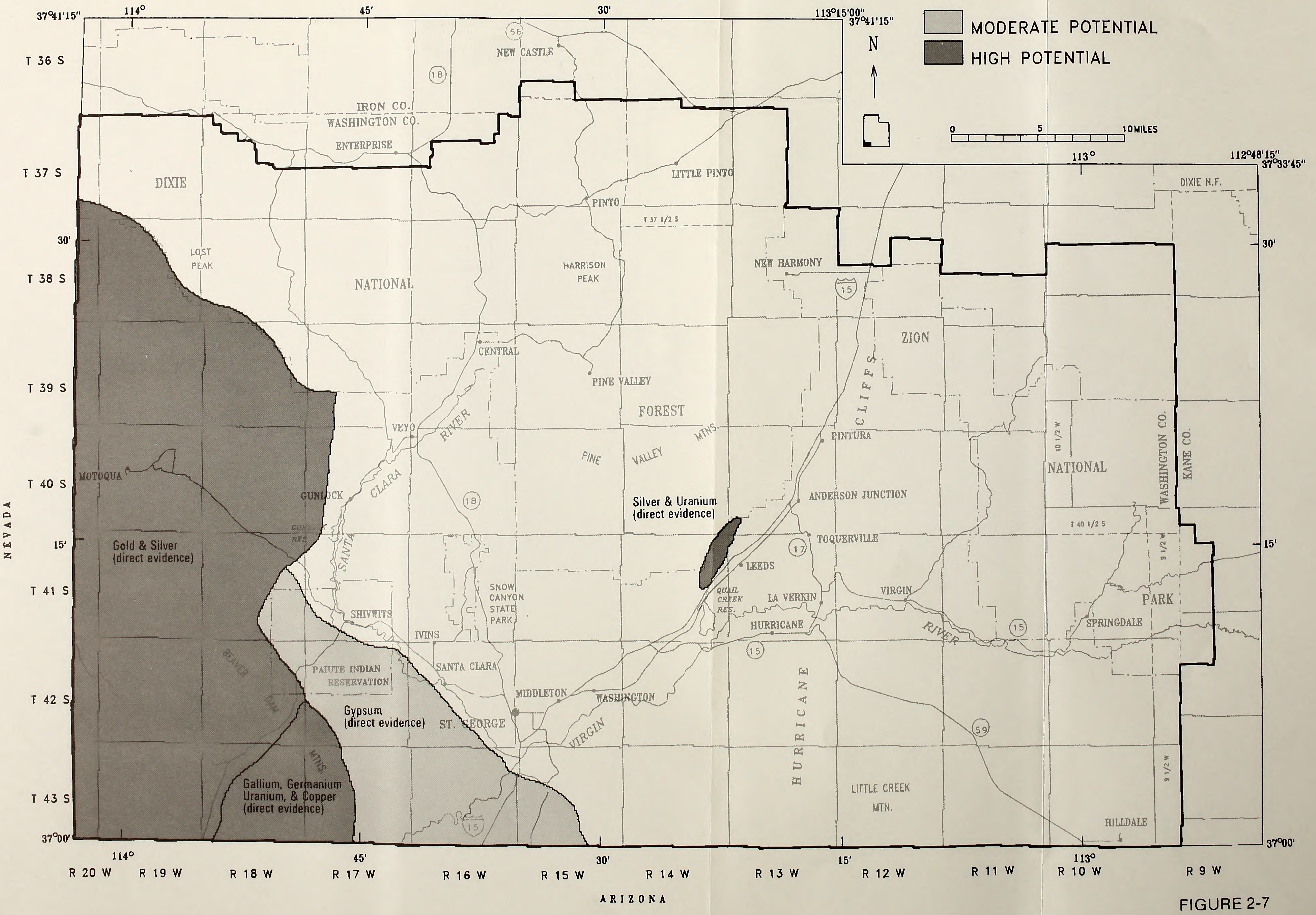


FIGURE 2-7

There are 620,000 acres open to mineral entry in the Resource Area. Two thousand six hundred (2,600) acres in the Beaver Dam Wilderness Area are withdrawn from mineral entry as of the date of Wilderness designation. Another 8,200 acres of public lands under R&PP classification, are segregated from mineral entry. A total of 8,960 acres are in the process of being withdrawn from non-metalliferous entry as public water reserves. There are 23,000 mining claims in the Resource Area. These claims encompass approximately 460,000 acres.

There have been a number of mining operations in the DRA since the 1870s. The most valuable mineral production resulted from the discovery of silver in the Silver Reef sandstone in 1875. The mining of the Silver Reef District produced approximately $8,000,000 worth of silver by 1891. Very little mining has occurred in the area since. Uranium production from the Silver Reef area took place between 1950-57 and involved about 1,600 tons of ore averaging 0.27 percent U308 . Uranium exploration has taken place where the Chinle and Shinarump Formations occur. Several hundred claims were filed on the Chinle outcrops near Smithsonian Butte and along the Vermillion Cliffs on the west flank of Canaan Mountain.

Some exploration of these claims has occurred but no mining has taken place. Non-production is likely due to low uranium content and/or low prices.

Copper, silver, lead and gold were mined from the Tutsagubet Mining District in the Beaver Dam Mountains. According to records, the district produced $5,805,032 worth of minerals from 1880 to 1962 mainly from the Apex, Pay Master and the Black Warrior mines.

In recent years, the Apex mine has been reworked by Musto Exploration LTD, for gallium and germanium which are rare strategic minerals. Gallium is used in fast semiconductors for microwave applications and in light-emitting diodes for optical fibers. Germanium is widely used in infrared optics, fiber optics and semiconductors. The Apex mine is patented and is the only primary source for these rare minerals in the United States.

The Goldstrike mining district, northwest of St. George produced $14,479 worth of gold, silver and copper between 1915 and 1932. This district has received much interest in the last two years. Tenneco Mining Division has been developing a gold leach operation in the headwaters of the East Fork Beaver Dam Wash. It is estimated that the mine will produce $50,000,000 worth of gold over the next ten years. In addition, Tenneco is conducting exploration in the general area for other gold sources. Much of this area and the Beaver Dam Slope has been claimed in the last few years and is considered to have a high potential for gold.

Other minerals such as iron, manganese, tungsten, gypsum and sulphur have been discovered in the Resource Area but because of better sources located elsewhere or low quality, finds have not been mined. Currently, the value of these minerals and their potential development is considered low.

Saleable Minerals

Saleable minerals in the Resource Area include sand, gravel, cinders, and building stone (Fig. 2-8). Demand for sand and gravel has been high in the

There are 620,000 acres open to mineral entry in the Resource Area. Two thousand six hundred (2,600) acres in the Beaver Dam Wilderness Area are withdrawn from mineral entry as of the date of wilderness designation. Another 9,000 acres of public land, under R&PP classification, are segregated from mineral entry. A total of 5,000 acres are in the process of being withdrawn from non-metalliferous entry as public water reserves. There are 11,000 mining claims in the Resource Area. These claims encompass approximately 440,000 acres.

There have been a number of mining operations in the DRA since the 1870s. The most valuable mineral production resulted from the discovery of silver in the Silver Reef sandstone in 1875. The mining of the Silver Reef District produced approximately $8,000,000 worth of silver by 1891. Very little mining has occurred in the area since. Uranium production from the Silver Reef area took place between 1950-57 and involved about 1,600 tons of ore averaging 0.17 percent U_3O_8. Uranium exploration has taken place where the Chinle and Shinarump formations occur. Several hundred claims were filed on the Chinle outcrops near Harrisburg Bench and along the Vermillion Cliffs on the west flank of Canaan Mountain.

Some exploration of these claims has occurred but no mining has taken place. Non-production is likely due to low uranium content and/or low prices.

Copper, silver, lead and gold were mined from the Tutsagubet Mining District in the Beaver Dam Mountains. According to records, the district produced $6,000,000 worth of minerals from 1900 to 1962 mainly from the Apex, Key Mascot and the Dixie-Apex mines.

In recent years, the Apex mine has been reworked by Musto Exploration LTD. for gallium and germanium which are rare strategic minerals. Gallium is used in fast semiconductors for microwave applications and in light-emitting diodes for optical fibers. Germanium is widely used in infrared optics, fiber optics and semiconductors. The Apex mine is patented and is the only primary source for these rare minerals in the United States.

The Goldstrike mining district, northwest of St. George produced $14,672 worth of gold, silver and copper between 1916 and 1932. This district has received much interest in the last two years. Tenneco Mining Division has been developing a gold leach operation in the headwaters of the East Fork Beaver Dam Wash. It is estimated that the mine will produce $30,000,000 worth of gold over the next few years. In addition, Tenneco is conducting exploration in the general area for other gold sources. Much of this area and the Beaver Dam Slope has been claimed in the last few years and is considered to have a high potential for gold.

Other minerals such as iron, manganese, tungsten, gypsum and sulphur have been discovered in the Resource Area but because of better sources located elsewhere or low quality, finds have not been mined. Currently, the value of these minerals and their potential development is considered low.

Saleable Minerals

Saleable minerals in the Resource Area include sand, gravel, cinders, and building stone (Fig. 2-7). Demand for sand and gravel has been high in the

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

MINERAL MATERIALS (Saleable)

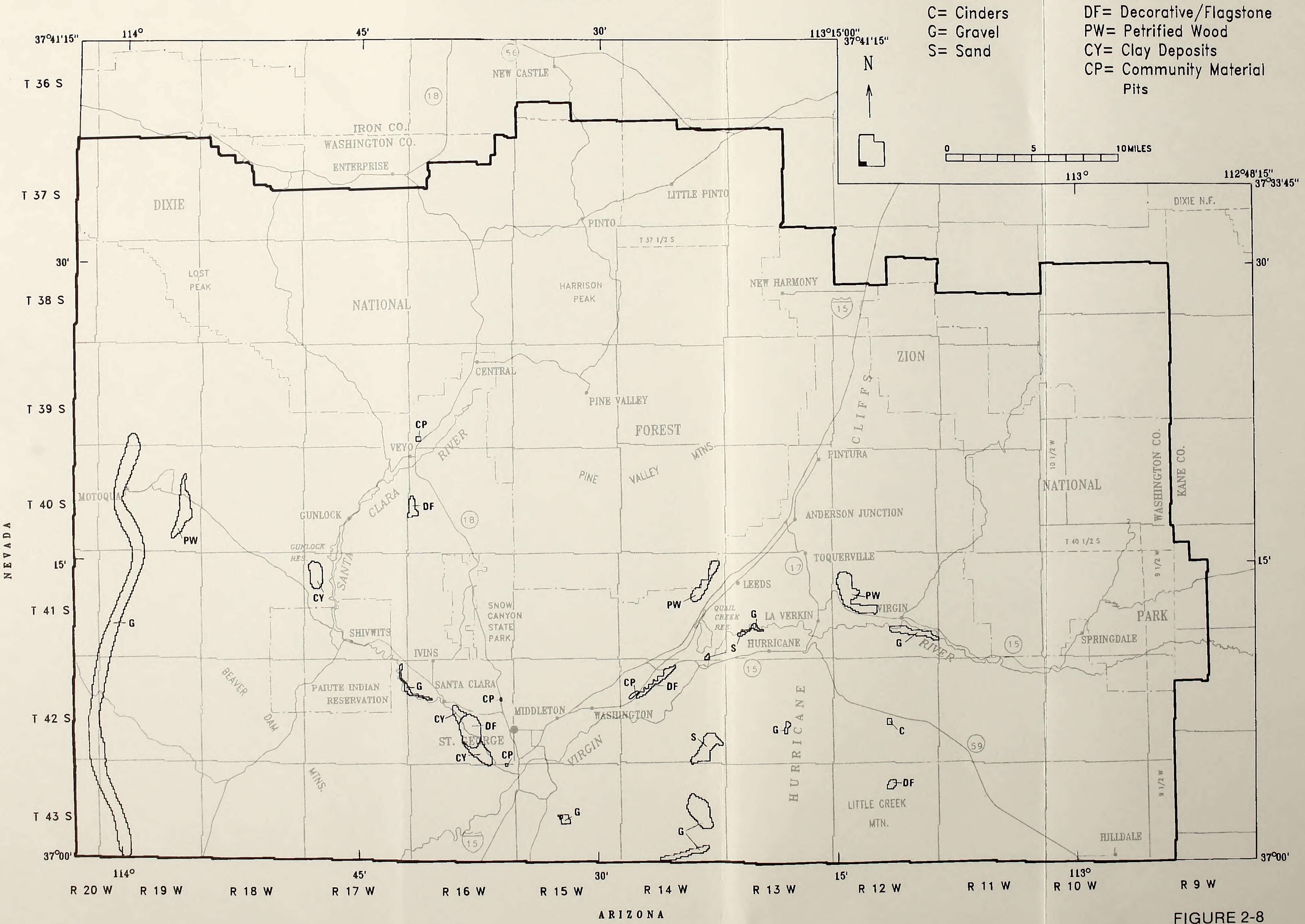


FIGURE 2-8

past decade because of rapid growth within the County. Since January of 1982, there have been 250,000 cubic yards of mineral material sales (462 permits) in the area. There are presently three designated community pits for sand, gravel and cinders within the Resource Area. Other disposals are permitted on a case-by-case basis under Environmental Assessment review.

Sand and gravel resources occur around the base of the Beaver Dam Mountains, terraces along the Fort Pearce Wash, Santa Clara River, and from the Shinarump member of the Chinle Formation. The sand and gravel from these sources are highly indurated quartzite and granite. These deposits are generally well sorted and require minimal screening, washing, and crushing.

Cinders are available at several locations within Washington County. The cinder sources are the result of volcanic activity and consist of pyroclastics, breccia, and ignimbrites. Most of these volcanic activity areas have good sources of light aggregate material and much of the aggregate material used in Washington County is obtained from these areas. Uses for light aggregates are for roads and other construction projects, railroad ballast, cement additives, concrete block manufacture, and for decorative stone and landscape material.

There are two important types of building stone or decorative stone in the Resource Area. These are weather-sculptured sandstone and picture stone. Sculptured sandstone boulders are the rocks most in demand for landscaping.

Picture stone (iron-stained sandstone) is produced on a small scale for rock art objects, walkways, and fireplaces. Most of the picture stone is found in areas along the Virgin anticline. There is no large-scale production for decorative stone within the Resource Area.

Demand for saleable minerals is expected to remain high. The Bureau will continue to provide these resources where Environmental Assessments indicate no conflicts or if conflicts can be mitigated.

Rights-of-Way

There are essentially three distinct types of utility rights-of-way in the Resource Area:

(1) those accommodating major transmission facilities;

(2) those accommodating local and regional distribution facilities; and

(3) site-specific non-linear rights-of-way which accommodate such things as microwave and transmitter sites.

Because of the geographic location of Washington County with respect to the location of mountain ranges, the Colorado and Virgin Rivers, Grand Canyon, Lake Powell, Lake Mead and the Beaver Dam Wilderness area, the County serves as a corridor for major power and gas utilities from the north and east which are funneled to Las Vegas and California through natural passes.

Rights-of-way across the public lands are generally granted under Title V of FLPMA and Section 28 of the Mineral Leasing Act of 1920 as amended (see 43 CFR

2800 and 2880). The 500 Kv Navajo-McCullough powerline delivers power from Page, Arizona to the Las Vegas-Los Angeles areas. The IPP transmission line constructed in 1985 delivers electricial power from near Delta, Utah to Los Angeles, California.

These rights-of-way coincide with the long range corridor needs and assessments identified by the utility industry in their Western Regional Corridor Study completed in 1986. They also link with BLM corridor designations in neighboring Arizona and Nevada and corridors identified in the Land and Resource Management Plan for the adjacent Dixie National Forest.

Local and regional distribution facilities include the various electric power and telephone distribution lines, pipelines, access roads, etc. During the past ten years there have been over 65 miles of power and telephone distribution lines, 32 miles of pipelines, and 28 miles of road rights-of-way granted on public land in the county. This demand is expected to continue for the life of this RMP.

There are four communication sites which accommodate various microwave and TV facilities. Other site specific rights-of-way include water wells, springs, reservoirs, recreation facilities, and material sites.

Unauthorized uses in the form of powerlines, telephone lines, pipelines, etc., exist. The extent of trespass is not known, but at least eight have been identified.

Rights-of-way have not been granted in wilderness areas, WSAs or areas where T&E species, important archaeological values or other critical elements would be adversely affected. Rights-of-way are avoided along the I-15 transportation corridor from Black Ridge to Anderson Junction. Major rights-of-way and utilities are shown on Fig. 2-9.

Withdrawal and Classification

Withdrawals withhold areas of federal land from settlement, sale, location, or entry under the general land laws. Classification is an administrative process, whereby we specify the use of a tract of land and generally relates to disposal actions. As such, these are support programs generated by other activities for the protection of public values.

In 1970, the majority of the public lands in Washington County (which encompass the entire DRA) were classified under authority of the Classification and Multiple Use Act of September 19, 1964 (78 Stat. 986; 43 U.S.C. 1141-18) and in accordance with Title 43 CFR Parts 2410 and 2411. This classification (encompassing 579,069 acres) segregated these lands from appropriation under the agricultural land laws and from sales. The lands remained open to all other applicable forms of appropriation. Excluded from the classification were 48,674.86 acres of public land. Under the withdrawal review program enacted with the passage of FLPMA, the classification was terminated in 1982 on all but the 1,040 acres known as the Joshua Tree Natural Area. Under Alternatives B and C, this area will be part of a proposed mineral withdrawal (see Chapter 3, ACEC prescriptions for Desert Woodbury and Beaver Dam Slope ACECs pg. 142).

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

MAJOR UTILITY ROUTES AND FACILITIES

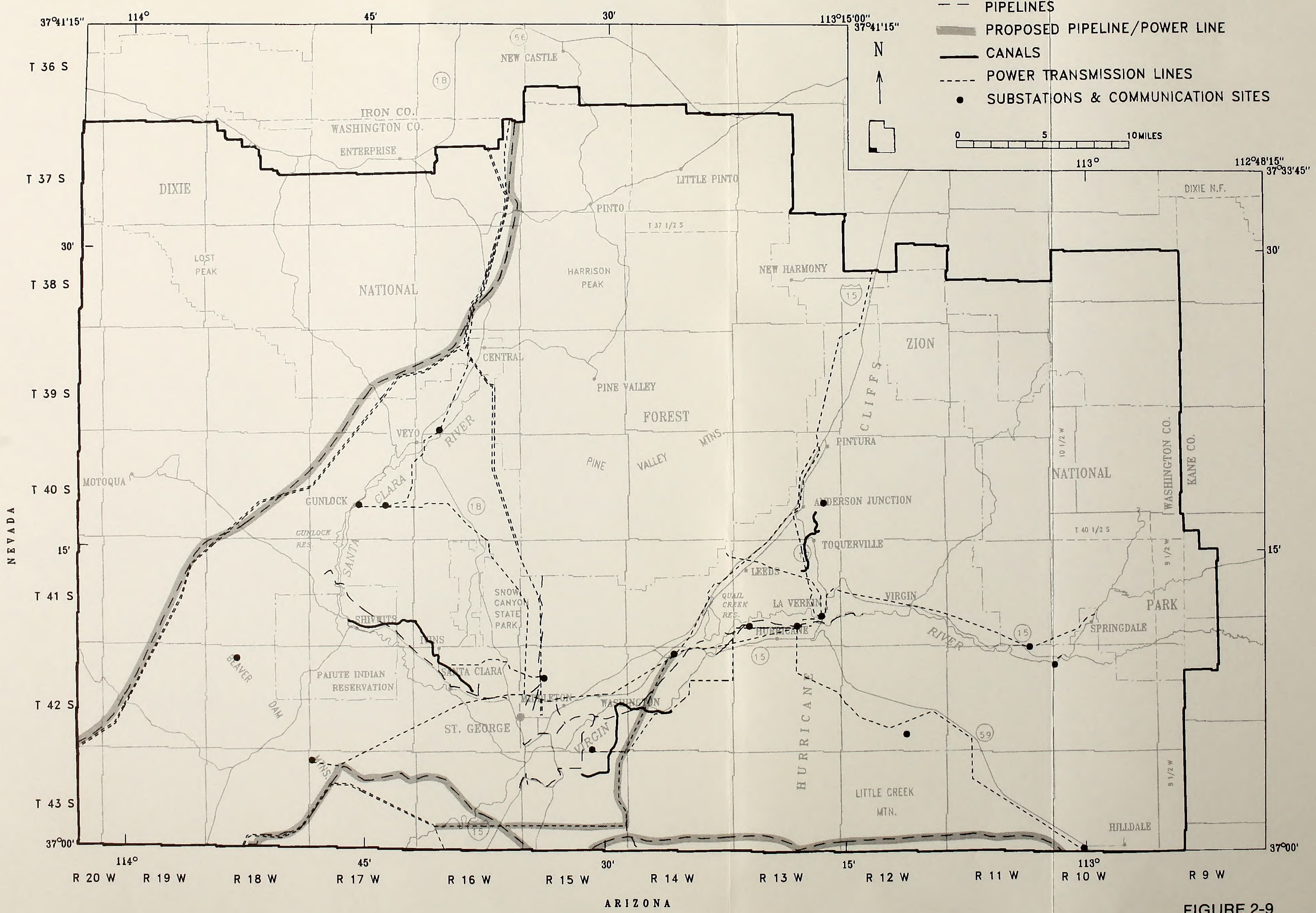


FIGURE 2-9

Lands leased under the R&PP Act are classified and segregated from entry under the public land laws including the mining laws (43 CFR 2091.3-2).

There are 12 R&PP leases in the Resource Area amounting to 2,593.56 acres.

In 1984 and 1985, four applications (totaling 975 acres) were evaluated for desert land entry as authorized by the Act of March 3, 1877 (19 Stat. 377; 43 USC 321, et seg.), as amended. These lands were all classified as unsuitable for desert land entry.

A Departmental Order of March 12, 1931, withdrew 2,229 acres for Powersite Classification No. 259, in accordance with Section 24 of the Act of June 10, 1920, 41 Stat. 1075 as amended.

Executive Order dated April 17, 1926, automatically withdraws lands as Public Water Reserve No. 107 (PWR) on springs and/or waterholes identified by the BLM on public domain lands. These PWRs withdrew lands from the operation of the public land laws and the location of nonmetalliferous minerals under the locatable mining laws. The lands remain open to mineral leasing and location of metelliferous minerals. There are 1,143.53 acres reserved under this Order for the protection of springs and waterholes.

A Commissioner's Order of June 11, 1943, and Public Land Orders (PLO) 1868, 4036 and 4061 dated June 3, 1959, June 6, 1966, and July 18, 1966, withdrew 41,302.21 acres of public lands for use in connection with the Bureau of Reclamation's Dixie Project. A revocation of all but 1,386.21 acres of withdrawn land became effective on March 16, 1982, under PLO 6149. This action restored the lands to operation of the public land laws. The 1,386.21 acres withdrawn under PLO 4036 remain segregated from appropriation under the public laws generally, including the mining laws. The lands were reserved for reclamation planning activities in connection with the LaVerkin Springs Unit, Colorado River Quality Improvement Program, as authorized under the provisions of the Act of June 24, 1974 (88 Stat. 271).

The LaVerkin Springs are highly saline springs which discharge into the Virgin River, a tributary of the Colorado River. The Bureau of Reclamation requested a five year continuation on 1,296.46 of the above acres to ensure availability until investigation for controlling the salt discharge from the LaVerkin Springs is completed and fully evaluated. The Bureau of Reclamation has considered filing a revocation application on the other 89.75 acres, but as yet, has not done so.

Under the withdrawal review program, all withdrawals existing on the date of the approval of FLPMA are to be reviewed and either continued, modified or revoked by the end of FY1991. The classification and withdrawal program has been effective in protecting public values. The Resource Area has the capability to continue the program.

The following table summarizes withdrawal and classifications in the Resource Area.

Table 2-3

SUMMARY TABLE OF CLASSIFICATIONS AND WITHDRAWALS

Number	Type	Acres
12	R&PP Classifications	2,593
4	Land Classified Against DLE's	974
1	Powersite Classification Withdrawal	2,229
3	Withdrawals for Public Water Reserves	1,144
1	LaVerkin Springs Withdrawal	1,386
1	Joshua Tree Natural Area	1,040
		9,366

Lands

The DRA administers public land totaling approximately 41 percent of Washington County land area (ref. Land Status Map). Most of this public land is well blocked and has high public value for multiple use resource management purposes. It is not anticipated that many of these blocked lands will be needed for community development purposes in the foreseeable future. However, BLM land ownership patterns near the communities are intermixed with private and state lands. These public lands have played, and will continue to play, an important role in the development of the communities and will be in demand for future community needs.

Examples of past BLM land actions in the DRA which have significantly influenced the current Washington County environment are:

> Gunlock Reservoir - The reservoir was built in 1965 by the Gunlock Water Users Association and was a right-of-way authorized project. Recreational development by the State of Utah was authorized under the R&PP Act. The area provides recreation in the form of boating, swimming and fishing for approximately 50,000 visitors per year. In addition, the development benefits boat sales, service shops and sporting good shops in the area. Gunlock Reservoir provides water to irrigate 1,400 acres of farm and pasture land.
>
> Snow Canyon State Park - Snow Canyon was patented by the State of Utah under the R&PP Act. It provides recreational opportunities in the form of hiking, camping and picnicking to over 200,000 visitors per year.
>
> Green Valley - patented under the Desert Land Entry Act, now supports 600 permanent residences. Green Valley offers luxury home lots, hundreds of condominiums, a shopping center, golf, swimming and the worlds largest tennis center. It is a winter attraction, especially for the Salt Lake area because of the sport condos, tennis courts and mild winter climate.

Quail Creek Reservoir - constructed in 1984, was built partially on BLM land under authority of a right-of-way grant. Quail Creek, like Gunlock, receives extensive recreational use. Shoreline recreational facilities are being developed under an R&PP lease. A bowling alley, golf course, trailer parks and boating facilities are being developed on nearby private land. These developments will place pressure on adjacent public land for such uses as camping, ORV use, unauthorized dumping, and requests for disposal for further private development.

Twelve R&PP leases have been issued on 2,593.56 acres.

Seven parcels of land totaling 172.49 acres have been sold.

Twelve state quantity grants have been processed involving 5,971.67 acres and one in lieu selection for 361.15 acres. These selections were made on land adjacent to communities and population centers. This is usually speculative high value property where development is likely to occur.

Two private land exchanges have been processed in which 108.4 acres of public land southwest of Ivins and northwest of St. George were exchanged for 198 acres of private land in Iron County. In addition, an exchange was made with the Division of Wildlife Resources (DWR) in which BLM acquired 2,440 acres in the DRA in exchange for lands in Iron County important to DWR for deer winter range.

In the past 10 years, over 9,000 acres of public land have transferred to state, private and municipal jurisdiction. A major portion of this land has or will be used for community expansion purposes. It is anticipated that the rapid growth trend will continue in Washington County, and likewise the demand for public land will continue through the life of this plan.

The manageability of public lands in the DRA can be improved by creating a blocked-ownership pattern through land exchanges, by disposal of lands that are difficult and uneconomical to manage, and by acquiring lands identified by other disciplines as necessary to their programs. Land exchanges, transfers, disposals and land acquisitions help meet demand for lands for community expansion, as well as resolve management problems.

Lands in the MFP were placed in zones to identify areas where public land could be disposed of and areas for retention. The retention zones were created also to identify non-public lands which could be acquired to improve the land ownership patterns. Of the public land located in zones identified for possible disposal in the MFP, 12,535 acres have not been disposed of. These acres are displayed in Chapter 3.

In the past 10 years, communities have expanded their boundaries in anticipation of continued growth. From 1975 to 1985 the combined population of 11 cities in Washington County went from 16,312 to 32,375, an increase of 98 percent. During the same period of time because of enlargement of city boundaries, the population density within the cities decreased from an average of .29 acres to 2.68 acres per capita, a decrease in population density of 824 percent. Average land use requirements, including commercial and infrastructure, range from 0.06 to 0.2 acres per person in similar Utah rural communities. Thus, there is plenty of space per capita.

Within the parameters of present city boundaries there were approximately 7,600 acres of public lands. There have been disposals of 2,204 acres (29 percent) over the past ten years. Nearly one half of the disposed land went as quantity grants to the State of Utah. These lands have been classified for retention by the state to be used for long-term income management. Approximately one-third of the disposed land went into private ownership by means of private exchange or sale and the rest went to the Washington County School District as R&PP leases to be used as school sites. From the above data, it appears there is sufficient public land remaining within the present city boundaries to sustain projected growth well past the year 2000 without incorporating additional BLM acreage. However, due to the minimal capital outlay required for municipalities to obtain land under the R&PP Act and ease of annexation, public lands are often more attractive and will continue to be in "demand" even when other land is available. These public lands within city boundaries are a management problem as described in Issue 1 (page 6).

With the increased growth and associated activities in Washington County, an increase in agriculture, occupancy, garbage dumping and other forms of trespass and misuse are occurring. Scattered, fragmented ownership patterns increase the incidence of trespass and misuse and also make these situations more difficult to detect and resolve.

Wilderness Resources

There is one Wilderness Area administered by BLM within the DRA. The Starvation Point WSA was designated the Beaver Dam Mountains Wilderness on August 28, 1984 by the Arizona Wilderness Act of 1984 (P.L. 98-406). Public Law 98-406 also stipulates that the 4,800 acres of the Starvation Point WSA not designated as wilderness have been adequately studied pursuant to Section 603 FLPMA and are no longer subject to the 603 requirement pertaining to interim management of WSA. Only 3,788 acres of the Wilderness are located in the DRA. The remaining 15,812 acres are located in Arizona and managed by the Arizona Strip District.

The Beaver Dam Mountains Wilderness is managed in accordance with the 1987 Paiute and Beaver Dam Mountains Wilderness Management Plan (WMP). The plan provides management direction for a five year period. No significant increase in wilderness use has been observed since the designation of the wilderness in 1984 and present onsite use is low. Rafting in the Virgin River Gorge in both the Beaver Dam Mountains and Paiute Wilderness is the most popular use (estimated 125 visitor days/year) and is pursued by residents of the Nevada, Arizona, and Utah communities along the river. If a demand for commercial trips develops, the WMP provides that regulation will be provided through the Special Recreation Permit process. Appropriate stipulations to protect wilderness values in the Virgin River Gorge will be specified in the permits.

There are 11 WSAs and one Instant Study Area (ISA) within the Resource Area. These are identified in Table 2-4 and Fig. 2-10. These units are managed according to Interim Management Policy (IMP) until designated as wilderness or released from wilderness consideration by Congress. (See Planning Criteria, page 8 for how wilderness study areas are being handled.)

Table 2-4

Wilderness Study Areas and Wilderness Area in the Dixie Resource Area

WSA NAME	ACREAGE	UTAH BLM STATEWIDE WILDERNESS DRAFT EIS VOLUME AND PAGE REFERENCE		
		VOLUME NO.	AFFECTED ENVIRONMENT	ENVIRONMENTAL CONSEQUENCES
Cougar Canyon	15,968	III A	6	14
Red Mountain	18,250	III A	10	19
Cottonwood Creek	11,330	III A	9	20
LaVerkin Creek	567	III A	8	14
Deep Creek	3,320	III A	7	15
Canaan Mountain	47,170	III A	10	23
Red Butte	804	III B	7	14
The Watchman	600	III B	7	12
Taylor Creek	35	III B	7	12
Goose Creek	89	III B	7	12
Bear Trap	40	III B	7	11
(Joshua Tree ISA)	1,040	(Not included in Statewide EIS)		
TOTAL	99,213			
WILDERNESS AREA NAME	ACREAGE	VOLUME NO.	ENVIRONMENT	CONSEQUENCES
Beaver Dam Mountain (Utah Portion)	3,788			
GRAND TOTAL	103,001			

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

WSA'S AND WA'S

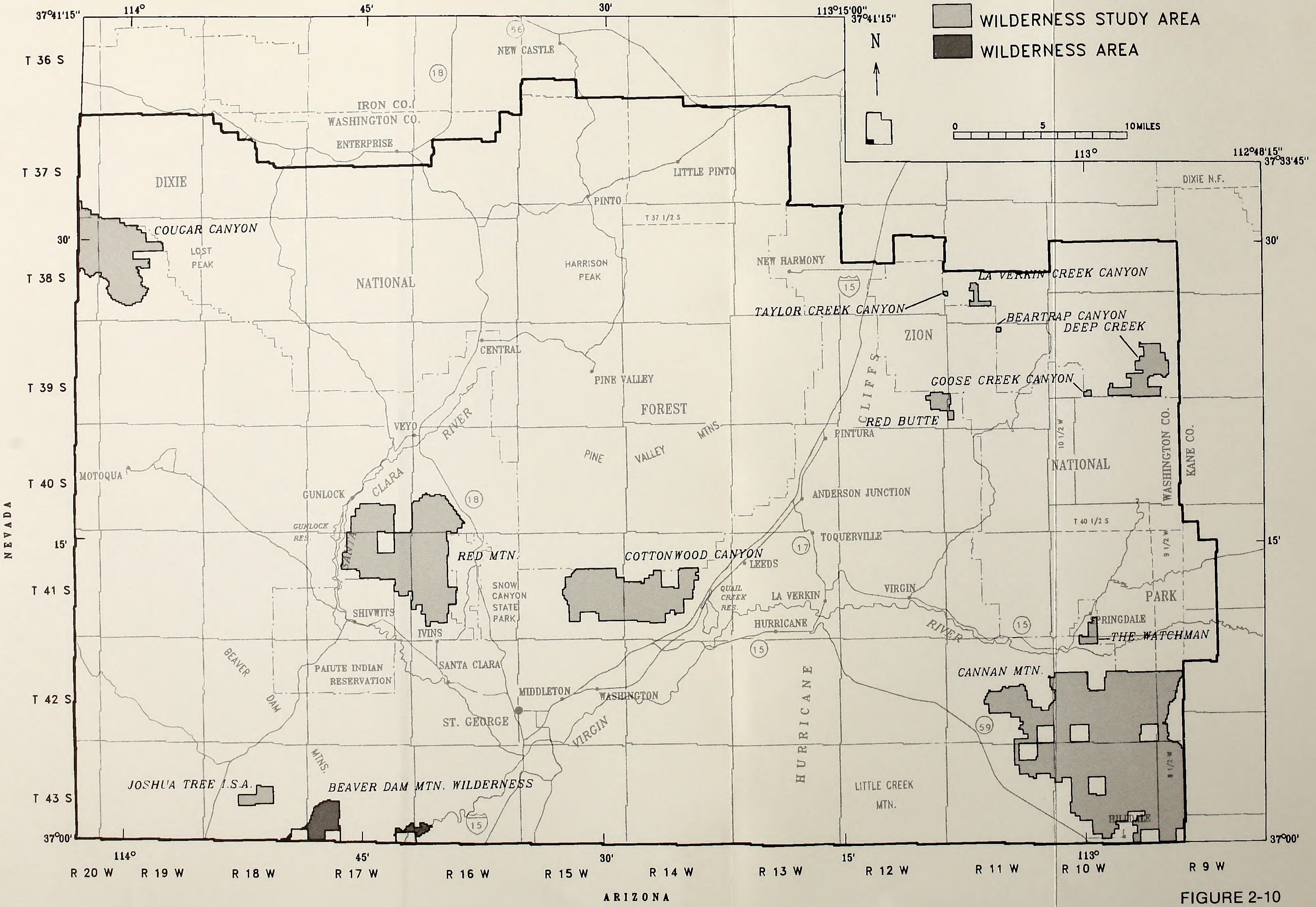


FIGURE 2-10

Visual Resources

The Colorado Plateau and Basin and Range Physiographic Provinces meet in a unique transitional zone within the DRA. The DRA exhibits a very complex visual resource characterized by exceptional examples of the scenic geologies of both provinces. The most important and well-known visual resource is Zion National Park in the White Cliffs of the Colorado Plateau. Canaan Mountain in the Vermilion Cliffs of the Colorado Plateau and the Snow Canyon-Red Mountain area in the transitional zone are also nationally important landscapes. Other important or distinctive landscapes include Black Ridge and the Hurricane Cliffs, Pine Valley Mountain, the Silver Reef-Leeds Navajo Sandstone formations, and the Virgin River Gorge. The Joshua Tree forest on the Beaver Dam Slope is an exception to the pattern of geologically derived natural landscapes. In addition to its natural landscapes, the DRA also possesses several urban, agricultural, and rural-pastoral landscapes of importance. They include the St. George and Hurricane-LaVerkin areas, the Santa Clara River valley, the Leeds area, and the Virgin River valley between Virgin and Springdale. The quality of scenery and the diversity of scenes in the DRA is not duplicated elsewhere in the immediate Utah-Arizona-Nevada region.

Visual values are identified and quantified in baseline visual inventories (Fig. 2-11). It is Bureau policy that the inventory be maintained on a continuing basis and that inventory updates be available for each RMP effort. The update for the Dixie RMP included all lands within the DRA except Zion National Park, the Dixie National Forest, and the Shivwits Reservation and was completed in the Spring of 1987. The update provides an overall description of the visual environment of the DRA and the affected BLM lands. The inventory update involved the identification of scenic quality, visual sensitivity, distance zones, and relative value units.

Scenic quality is rated as A, B, or C, with A being the most scenic. Thirty-eight scenic quality rating units were inventoried. Fifteen of these units received A quality ratings and 13 units received B quality ratings. The inventory determined that BLM possessed 117,920 acres of A quality and 329,040 acres of B quality scenery. Because they are rated scenic quality A and are unique or very rare within their respective physiographic provinces, the Canaan Mountain and Red Mountain areas meet the conditions to qualify for ACEC designation.

Visual sensitivity levels measure the degree of public concern for the maintenance of scenic quality. Forty-three sensitivity units were rated. The inventory determined that 19 of these units exhibited high sensitivity and that only six units were of low sensitivity. In terms of BLM acreage, 154,460 acres are of high sensitivity, 261,729 acres are of medium sensitivity, and 205,020 acres exhibit low sensitivity.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

VISUAL INVENTORY CLASSES

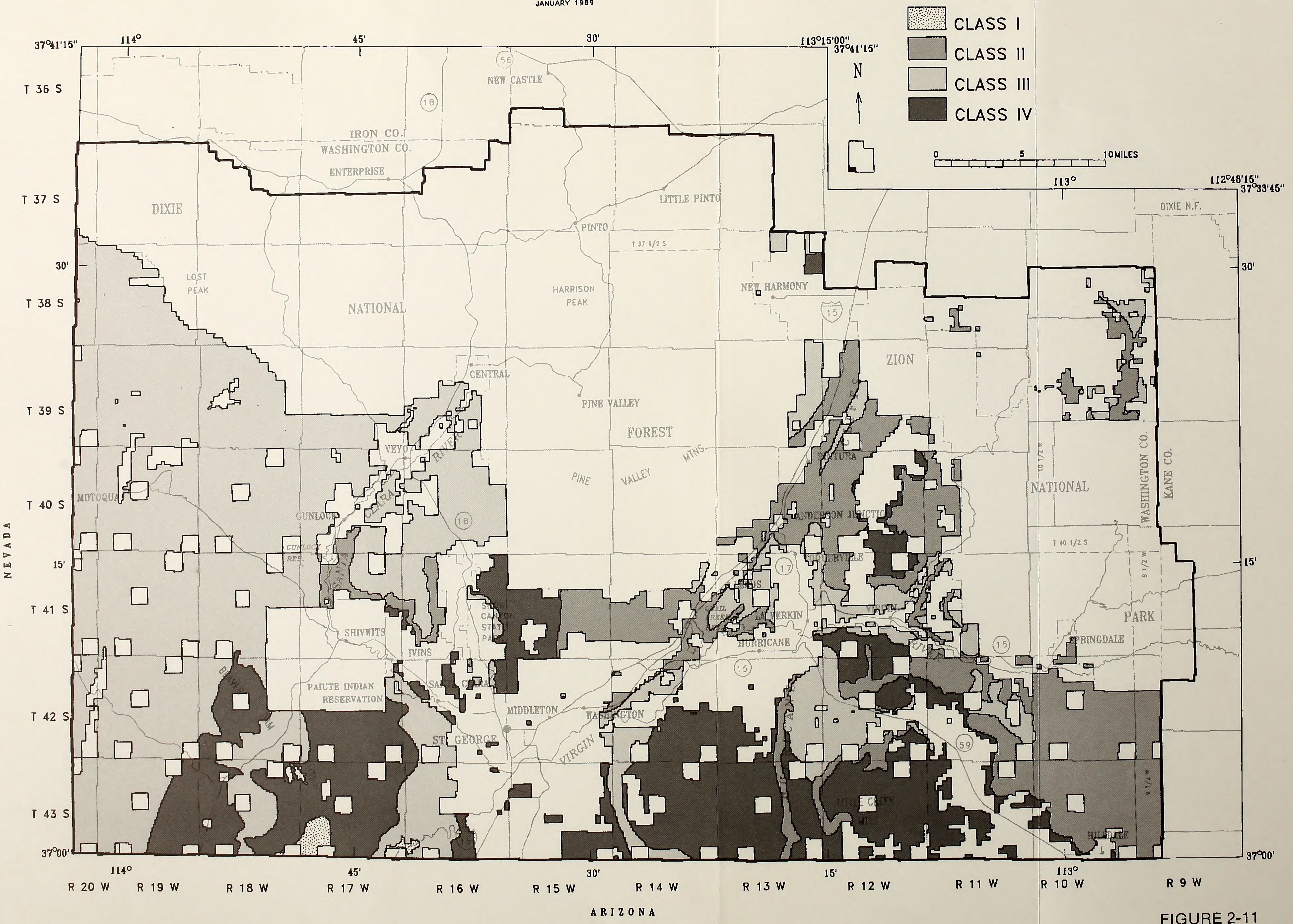


FIGURE 2-11

The DRA was mapped into 36 distance zone units based upon distance increments of 0 to 2 miles, 2 to 5 miles, 5 to 15 miles, and 15 miles and beyond from key observation points such as major highways and overlook areas. Bureau lands include 89,835 acres in the foreground, 182,820 acres in the middleground, 51,260 acres in the background, and 303,230 acres in the seldom seen distance zone.

The update identified 82 relative value units based upon combinations of scenic quality, sensitivity, distance zones, and any Congressional decisions such as Wilderness designation to preserve a natural landscape. By rating the units on a four-point "inventory class" scale, the inventory update measured the variation in visual values unique or relative to the DRA. The Beaver Dam Mountains Wilderness is assigned an Inventory Class I rating. Class II ratings were assigned to 28 units and 131,930 BLM acres. Thirty-four units and 333,285 BLM acres received Class III relative value ratings. The 18 units and 159,570 BLM acres that possessed the lowest relative values were assigned a Class IV rating. Many of the Class III rated units are considered to be equivalent in relative value to the Pine Valley Mountain and Beaver Dam Mountains Wilderness Areas, Zion National Park, or Snow Canyon State Park. Although policy dictates that only the Wilderness Area can receive a Class I relative value rating, the overall value of the DRA visual resource is high.

With the exception of the Beaver Dam Mountains Wilderness, each relative value unit is assigned by RMP decision an objective concerning the maximum amount of landscape alteration and surface disturbance that would be desirable within the unit. The VRM class objectives are expressed as degrees of contrast that would be allowed under surface disturbing proposals. The contrast rating process determines whether a proposed project would meet the class objective.

This process measures the level of change against the VRM class objective for the area in which a proposed project is to be located. To meet the objective, the project's level of visual change must be equal to or less than that allowed under the objective. If the objective is met, little mitigation is needed to reduce visual contrast. If the objective is not met, reasonable and practical mitigation measures are applied to reduce contrasts as much as possible.

Recreation Resources

The DRA lands and recreational facilities are part of a larger multiagency recreational complex conveniently defined by the boundaries of Washington County, Utah. In addition to the BLM resources, recreationally significant resources within the county include Zion National Park; the Pine Valley Mountain area of the Dixie National Forest; the Snow Canyon, Quail Creek Reservoir, and Gunlock Reservoir State Park properties; the large block of private land on the Kolob terrace; the year-round community recreational facilities in the St. George-Washington-Santa Clara urban area; and the infrastructure of tourist services and facilities in the St. George area and Springdale-Rockville and Hurricane-LaVerkin areas.

Recreational use of these resources is characterized by two types of demand originating from distinct resident and nonresident user populations. There is a strong nonresident demand originating from California, northern Utah, Las Vegas, Phoenix-Tucson, and abroad. Situated on the western edge of the

Colorado Plateau, the area possesses scenic resources of international importance and reputation. Because it is located within the so-called Zion-Bryce-North Rim travel triangle and in close proximity to the Los Angeles basin via Interstate 15, sightseeing use of these scenic resources is high. In terms of total visits, visiting scenic attractions is clearly the major component of nonresident demand. Studies estimate that 90 percent of the nonresident visitors to Washington County sightsee in the vicinity of Zion National Park in the eastern portion of the county.

Other components of nonresident demand include the summer use of the higher elevations of the Kolob Terrace and Pine Valley Mountain by residents of Las Vegas-Clark County, winter "snowbird" use concentrated in the St. George area, and in the winter, spring, and fall visitation from Wasatch Front and Las Vegas residents in association with golf, softball and tennis tournaments and conventions held in St. George. Some measure of the magnitude of nonresident use can be gained from the fact that over two million nonresidents visited Zion National Park in 1988. Because it is so closely associated with the vacationing California family, over 50 percent of the nonresident use occurs during the hot summer months when California public schools are closed.

The winter climate and scenic amenity are in large part responsible for increases in the resident population that make Washington County the fastest growing area in Utah. The population grew from 26,400 in 1980 to over 41,000 in 1987. This population is currently structured by a large retired and elderly component, a younger population of families with high household sizes approaching four individuals, and a substantial number of college-aged and unmarried youth. The present size, diversity, and growth in the population have triggered a substantial resident demand for recreation which involves a correspondingly wide spectrum of activities, resources, seasons, and locations. An important aspect of the resident use is that for many activities, participation is a year-round phenomenon. In this respect, resident participation rates and activity preferences are much more likely to resemble the leisure preferences of southern California or Las Vegas residents than those of other Utah residents.

The BLM manages most of the federal land in Washington County. The federal government (BLM administration) is the major landholder across the southern two-thirds of the county. Because of the land ownership pattern, the BLM is involved to some extent in virtually every recreational use that occurs in the county. BLM lands surround the communities and the DRA is involved in various ways in the provision of community park and recreation needs. BLM programs include the permitting of locally sponsored community events such as motorcycle and horse endurance races and land tenure adjustments for city parks, playgrounds, and golf courses. BLM lands provide the adjacent open space needed for unstructured community recreation activities such as ATV use, nature study, and picnicking. The scenic backdrops of the major communities are predominantly BLM lands and the DRA's visual management program is important to the "backyard" recreationist in these communities.

The Bureau controls much of the scenic and open-space land base for dispersed and resource-dependent recreational uses. Although Zion National Park is the primary scenic objective in the county, the BLM scenic resource is also of high quality and occupies a large portion of the DRA. Importantly, DRA scenery is viewed by every sightseeing tourist in the I-15 travel corridor and the entrance corridor to Zion National Park. Four-wheel-drive touring, driving for pleasure, and motor vehicle sightseeing are popular resident recreational pursuits. Because the BLM lands generally occupy middle and lower elevations, the DRA plays a major role in extending the season of resident sightseeing and other dispersed recreational uses to a full year round basis. The DRA meets much of the cool season resident demand and is used to some extent by virtually all of the summer tourists.

The Bureau has generally pursued a passive role in providing for dispersed recreation opportunities. No formal visitor service program exists to structure and identify summer season opportunities with area designations, maps and literature, signs, pullouts, and view areas. It is likely that most nonresident visitors are unaware that they are recreating on and enjoying BLM lands. In particular, BLM lacks "publicity" in the heavily used I-15 and U-9 travel corridors and the two major overnight lodging locations at St. George and Springdale-Rockville.

The DRA has developed two facilities -- Red Cliffs and Baker Dam -- to meet demand for site-oriented recreation. The Red Cliffs complex is located in Quail Creek Canyon and includes a 10 unit campground, ten picnic sites and a group area, the Desert Wilderness nature trail, and an interpreted archaeological site. The facility is in close proximity to Quail Creek Reservoir State Park and the privately owned Silver Reef historical area. This site receives about 12,000 annual visits.

Over 50 percent of the annual use at the Red Cliffs complex occurs as day use during the early spring from March to May. During this period, the site functions as a regional urban park for the residents of Cedar City and St. George. Preschool use; group picnicking; high school, college, and office parties; family reunions; day hiking and nature study; and sunbathing use often exceed the design capacity of this facility. During summer and fall, the camping units are well utilized. Overflow visitation from the newly created Quail Creek Reservoir State Park has increased summer resident visitation at the Red Cliffs site.

Baker Dam Campground is a small (ten unit) campground north of Veyo, Utah which receives heavy fishing use during the late spring and early summer. Recreation at this site is mostly in conjunction with a 50 surface acre reservoir owned by an irrigation association.

Recreation Management Areas (RMAs) are management units identified or verified through the RMP process. Special Recreation Management Areas (SRMAs) are logical management units that provide specific recreation activity and experience levels on a sustained yield basis. The identification or verification of existing SRMAs establishes priorities for management and funding and delineates management units that will require activity planning.

The Extensive Recreation Management Area (ERMA) consists of the remainder of the DRA not included in SRMAs. The DRA presently shares the Canaan Mountain SRMA with the Kanab Resource Area. The DRA portion of the Beaver Dam Mountains Wilderness is also identified as an SRMA.

Four candidate SRMAs and an expanded Canaan Mountain SRMA have been identified in the baseline recreation inventory conducted for the RMP. Within the candidate SRMAs, the baseline inventory used the Recreation Opportunity Spectrum (ROS) concept to identify broad settings of opportunities for primitive to developed recreational experience levels. The ROS inventory categorized the naturalness of environments along a pristine to highly developed scale, but did not identify areas which could best accommodate resource-dependent activities such as hunting, fishing, water sports, or sightseeing. The candidate SRMAs encompass 211,940 acres and are located in areas designated as Recreation Lands in the Virgin River MFP. Within these areas, the ROS inventory identified primitive experience opportunities on 70,820 acres, semi-primitive motorized opportunities on 113,050 acres, roaded natural settings on 2,825 acres, and rural opportunities on 25,245 acres (see Appendix Glossary for full description of ROS classes identified in this Resource Area).

In 1972, the Secretary of the Interior (Nationwide Rivers Inventory, National Park Service) determined that Deep Creek and the North Fork of the Virgin River were "free-flowing" streams possessing "outstandingly remarkable values" and were "eligible" for inclusion into the National Wild and Scenic Rivers System (NWSRS). Approximately ten percent (five miles of Deep Creek and one-half mile of the North Fork) flow through DRA lands. Because it is not free-flowing, the Santa Clara River does not qualify as an eligible river. The National Park Service has determined that the segment of the Virgin River from Lake Mead to Highway 17 near Hurricane does not meet the eligibility standards (Rocky Mountain Regional Office, 1988).

The BLM Guidelines for Fulfilling Requirements of the Wild and Scenic Rivers Act (August 1988) provide procedural guidance for the evaluation of eligible Wild and Scenic Rivers (WSRs) in RMPs. If, as in the case of the DRA, more than one agency's lands are involved, the study evaluation is automatically deemed a "joint study". Where the DRA controls only a portion of the eligible WSA segment, the suitability recommendation is deferred from RMP consideration to the joint study effort. An agreement between the BLM Utah State Office and NPS Rocky Mountain Regional Office (January 18, 1989) provides the framework for developing working agreements for joint studies by the Cedar City District and Zion National Park.

The RMP process will "classify" the DRA portions of Deep Creek and the North Fork as wild, scenic, and/or recreational based upon the condition of the rivers at the time of the RMP. Classification establishes the guidelines for interim management until the designation decision is reached by Congress. Subject to valid existing rights, interim protection prevents any actions that would change classification from wild to scenic or scenic to recreational.

Cultural Resources

Cultural resources include both historic and prehistoric resources. The cultural resource program also administers paleontological resources.

The DRA has a rich, somewhat varied, but rather short history as documented in the written record. The historical record begins in 1776 with the passage of the Dominguez-Escalante Expedition from Santa Fe. Other transient use of the

DRA occurred between 1829 and 1844 prior to the era of Mormon expansion and development. Use of the Spanish Trail between Santa Fe and California, the Jedediah Smith Expedition, the Armijo Expedition, the Yount Wolfskill Expedition, and the John C. Fremont Expedition all occurred during this period.

Beginning with the establishment of the Dixie Mission and to the present day, the historical heritage of the DRA is most closely associated with events in Mormon history including the construction of the St. George Temple and establishment of the Honeymoon Trail, the Mountain Meadow Massacre, and construction of Fort Pearce. Mining at Gold Strike and Silver Reef are secular aspects of this historical period. However, virtually all of the historical sites and structures are in private ownership. Fort Pearce is the only BLM-controlled National Register property in the DRA.

The Warner Valley Dinosaur Tracks is a significant paleontological site found at the base of Sand Mountain. This site has been developed and interpreted for visitor use. The site retains considerable research potential particularly if the tracks continue back into exposed strata.

Compared to the historical and paleontological resources, prehistory on the BLM lands of the DRA is considered significant. Known prehistoric resources include one significant Archaic site cluster; sites representing riverine, upland, and cliff outwash adaptations of the Virgin River Branch Anasazi; and a large Southern Paiute/Paiute occupation that apparently appeared after A. D. 1100 in the St. George Basin. It is estimated that over 10,000 sites may be preserved on BLM lands.

Prehistoric Paiute sites are found along the length of the Santa Clara River, near Fort Pearce, Silver Reef and Harrisburg Junction areas, and in the Big Sandy area north of St. George.

The Anasazi sites constitute the major archaeological resource of the DRA. Six Anasazi areas that include BLM lands have been identified. They include the Santa Clara River from Gunlock Dam to the Shivwits Reservation, the Santa Clara River-Land Hill Section from Shivwits to Santa Clara, the Virgin River from Atkinville to the Virgin River Gorge, Little Creek Mountain, and the Vermilion Cliffs/Canaan Mountain Base. Material remains include structures, ceramics and other artifacts, and rock art. Importantly, the Virgin Branch Anasazi resource in the DRA displays two and possibly three distinct subsistence strategies or adaptations. A major research question is whether the two strategies were mutually exclusive or parts of a single strategy.

The riverine adaption is mainly restricted to the lower, hotter and drier portions of the DRA in the St. George basin. Characteristic of this adaptation are sites clustered very tightly along the Virgin and Santa Clara Rivers and certain tributaries. Fig. 2-12 displays a fairly typical excavation of Anasazi riverine adaption along the Virgin River.

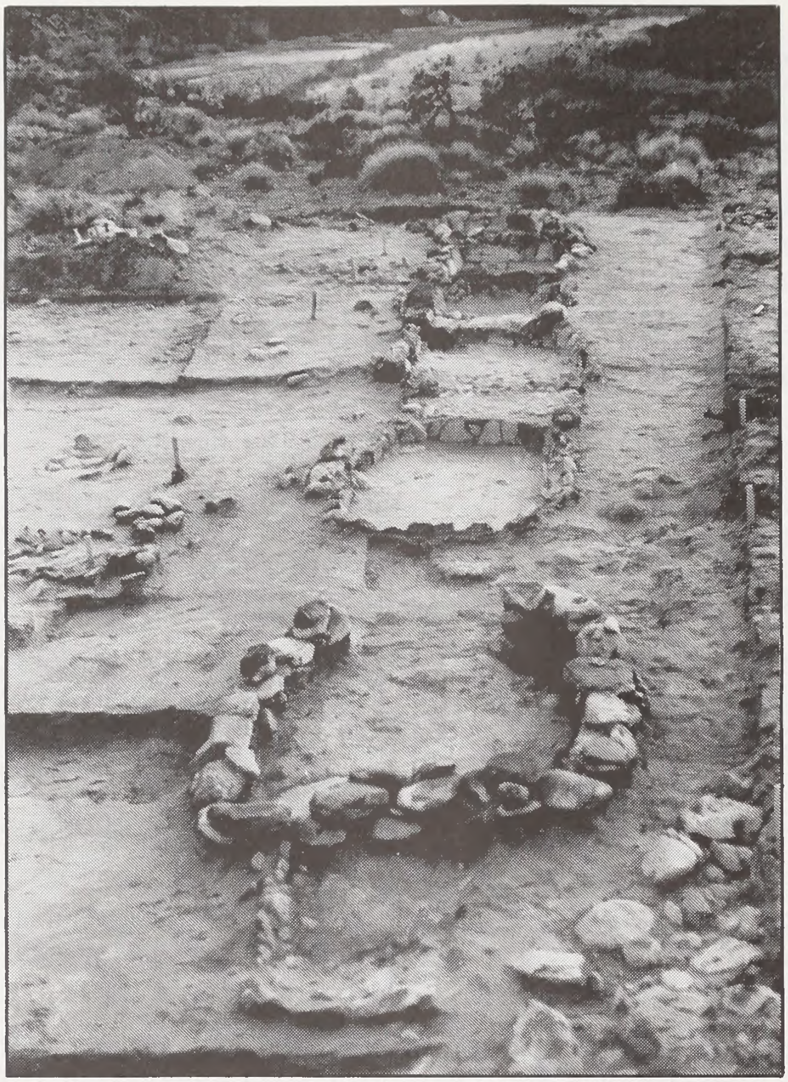


Fig. 2-12 - Excavated "Little Man" Anasazi site along the Virgin River. Five storage rooms are visible with the river in the background.

The upland adaptation is represented by a large cluster of sites in the pinyon-juniper zone on Little Creek Mountain. The Little Creek sites appear as similar to the riverine sites, but the upland sites do not have permanent, flowing water available.

A high density Anasazi area with concentrations of structural sites has been identified on the large outwash areas along the base of Canaan Mountain. These sites represent a variation to both riverine and uplands adaptations.

The overall condition of the cultural resource is fair. Data gathered for a recent General Accounting Office report indicate that 66 percent of the Anasazi structural sites have been disturbed by looting. Virtually all of the large BLM sites have been vandalized and probably 80 percent have been severely damaged. It is believed that almost all of the diagnostic surface resources such as projectile points and painted ceramics have been illegally removed from the DRA by collectors. Rock art panels are in good condition although some defacement has occurred. In a few locales, the attempted removal of rock art is evident.

Current management of the resource in the DRA is associated with the cultural clearance program and emphasizes both insitu avoidance protection and data recovery protection where the site is lost in excavation. During the last decade, over 400 actions in the DRA have required formal cultural resource evaluation. While vandalism is a major and ongoing problem in the DRA, no formal enforcement program exists to effectively provide protection from vandalism. Extensive surveillance and patrol activity are performed by cultural resources staff.

The BLM clearance and inventory records are a valuable data source for researchers outside the Bureau.

The prehistory resource in the DRA is presently managed for information potential and is protected by physical or administrative means until the potential is realized through appropriate study. The exception is the developed and interpreted Red Cliffs site which is managed for its public value. No other prehistory resources are managed for public values or for insitu conservation. The high density riverine and Little Creek Mountain Anasazi areas and the Cedar Pockets/Bulldog Pass Archaic area qualify for conservation area management that would maintain their present condition and protect them from conflicting land or resource uses. Portions of the Gunlock and Land Hill sections of the Santa Clara River possess structural sites and rock art with sufficient display potential and public demand to be managed for their public values. Fig. 2-13 shows examples of rock art found in the DRA.

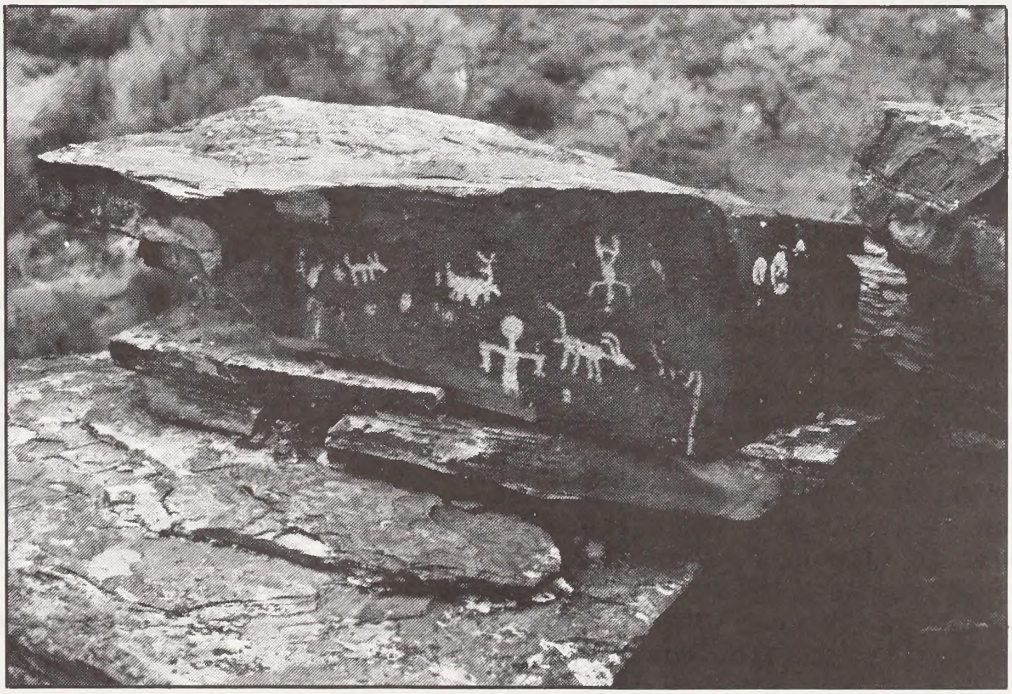


Fig. 2-13 - Examples of rock art found in the Dixie Resource Area.

Grazing Management

There are 112 grazing allotments on about 580,400 acres of public range lands in the Resource Area. One hundred fourteen (114) permittees are authorized to graze 10 horses, 6,085 cattle, and 700 sheep on these allotments. Actual use over the past seven years has averaged 23,300 AUMs. There are 15 allotments which cross administrative boundaries. The DRA administers grazing on nine of these allotments and the Arizona Strip District administers six.

Grazing management decisions were made for most allotments based on the Hot Desert EIS (1979) and Kanab-Escalante EIS (1980). Approximately 7,000 acres of public lands north of Zion National Park were not included in these EISs. Five custodial allotments are permitted on this acreage: Cedar Mountain, Crystal Creek, East Deep Creek, Gordon Creek, and West Deep Creek. Forage allocations were determined from range surveys conducted in 1977. Occular recon studies (see Glossary) were done in 1988 to establish baseline data in order to develop allotment management plan (AMP) objectives for these five allotments.

Trend data from the EISs (1979-80) indicate of the lands analyzed, about 15 percent are improving, 51 percent are static, and 34 percent are in declining trend. Current trend data indicate about 46 percent of the allotted lands are improving, 38 percent are static, and only 16 percent are declining. The forage management objectives of the Hot Desert and Kanab-Escalante Grazing EISs were to authorize livestock grazing use of about 21,000 AUMs on a sustained yield basis. During the past eight years authorized use has averaged about 23,000 AUMs. (Annual precipitation has been above normal during this period.)

Grazing allotments are placed in one of three management categories, M for maintain existing favorable conditions, I for intensive management to resolve conflicts, and C for custodial where returns for intensive management are not expected to be great and intensive management is not warranted. There are 16 M category allotments, 21 I category allotments and 73 C category allotments as shown on Table 2-5, Grazing Summary. The AMPs are written to set objectives for range management. Objectives include improvement of condition and trend. Most of the allotments have implemented AMPs. Table 2-5 shows the status of AMP implementation.

Monitoring is done intensively in accordance with Bureau policy and guidance. Items intensively monitored (studied) include precipitation, actual use, plant utilization rates, soil surface factors, and trend. Data is collected by toe pace transects, plot frequency, paired plot, photo plot belt transects, rancher records, precipitation stations, and utilization transects. The resultant findings are recorded in studies files at the DRA. This information is used to conduct allotment evaluations. As an example, past monitoring studies on 21 allotments indicated adjustments be made on seven (two reductions and five grazing increases). Grazing adjustments could include stocking adjustments, study adjustments, management changes, specific changes on season of use on an allotment or by the pasture, key species change, needed improvements in facilities monitoring, and husbandry techniques.

Table 2-5 summarizes the current grazing program. (Because of the administrative overlap with Arizona as described above, the acres in this table may not match other figures presented elsewhere.) A Range Program Summary or RPS is available in the Cedar City District or DRA offices and gives more detail on the grazing program in DRA.

Wildlife and Threatened and Endangered Species

There are 436,000 acres under management of seven wildlife habitat management plans (HMP). Species with legislative, economic or recreational importance are given the most emphasis. These include mule deer (about 11,000), elk (about 200), bighorn sheep (about 20), Gambel's quail, raptors, waterfowl, and fish (trout and bass). All objectives of these HMPs have been completed except for those listed in Table 2-6. Completed actions for wildlife include wildlife forage allocations, construction of 13 wildlife water catchments, a 600-acre prescribed burn, installation of bird ladders in all livestock water tanks, fencing a portion of 10 livestock reservoirs, establishing the 3,040-acre Woodbury Desert Study Area, improving 10 acres of waterfowl habitat, restricting vehicle use on the Beaver Dam Slope to designated or existing roads and trails, and construction of seven quail drinkers on livestock pipeline. Wildlife forage allocations were determined in the Hot Desert and Kanab-Escalante Grazing EIS (1978) and are shown in Table 2-7. Table 2-7 shows an excess of 6,831 AUMs for wildlife.

Deer populations for all herds in the Resource Area have increased over the past ten years to optimum populations as determined in Utah State Division of Wildlife Resources Management Plans. Bighorn sheep transplants and burgeoning elk numbers sometimes conflict with domestic sheep allotments and deer range respectively. Wildlife habitat is being lost to urban development in the St. George, Washington, and Hurricane areas, and at a few active mine sites such as Tenneco. Recreational activities associated with increased growth in Washington County, particularly ORV travel, are disturbing wildlife and their habitats adjacent to urban areas. Important big game habitat is displayed in Fig. 2-14.

There are four species of animals and three species of plants in the Resource Area listed as threatened or endangered. These are peregrine falcon, bald eagle, woundfin, desert tortoise, dwarf bearclaw poppy, purple-spined hedgehog cactus and Siler cactus. Fig. 2-15 displays T&E species. Endangered, threatened, and sensitive species are restricted in distribution or have a sparse population or both. Several of these species occur adjacent to St. George, Washington, and Hurricane urban areas and are placing restrictions on urban expansion and economic development. A few species are also being impacted by activities associated with urban growth such as ORV travel. Also, there are many "sensitive" species such as Gila monster, chuckwalla, spotted bat and Virgin River chub. Fig. 2-16 displays sensitive species.

TABLE 2-5 GRAZING SUMMARY 1986

Allotment		Number of Permittees	Management Category	Grazing System	Livestock		Authorized Use (AUMs)	Impl. Status	Acres				Season of Use	Grazing Mgmt. Constraints
Number (GIS)	Name				No.	Kind			Public	State	Private	Other Federal		
4001	Airport	1	C	1P C	1	H	7	I	135	655	10		10 to 05	RIP
4002	Alger Hollow	1	C	1P	107	C	696	I	7,270	4,755	3,980		11 to 06	T&E,AC,W
4003	Apex Slope	1	I	4P RR	100	S	366	I	5,755	305			12 to 04	WA,T&E,AC
4078	Ash Creek	1	C	1P	25	C	88	I	1,150		185		02 to 05	IH,SR
4004	Beaver Dam Slope	8	I	4P D	416	C	2708	I	54,495	5,485	175	10 BIA	11 to 05	T&E,AC
4005	Big Mountain	1	I	2P D	87	C	412	I	9,075		30	380 FS	05 to 10	W,WS
4083	Big Mountain Custodial	1	C	1P C	3	C	15	I	375		880	210 FS	05 to 10	W,WS
4006	Big Plains	1	C	1P	30	C	15	I	2,220	220	690		03 to 02	SR,AC,WS
4049	Black Canyon	1	C	1P C	2	C	12	I	55	285	190		03 to 09	IH
4007	Boomer Hill	2	I	2P D	31	C	155	I	4,255	345	10		01 to 05	T&E,CW,AC
4008	Boot Spring	1	M	2P	20	C	90	P	2,380				02 to 05	CW
4009	Box Canyon	1	C	2P D	19	C	48	I	615	60	690		03 to 05	CW,AC
4010	Bull Mountain	1	I	2P D	20	C	240	P	13,990	1,195	1,085		03 to 02	T&E,RIP,W
4017	Buttermilk	1	C	1P C	8	C	40	I	1,965		1,365		05 to 10	RIP,SR,AC
4099	Canaan Flat	1	C	1P C	6	C	72	I	440	110	1,110		03 to 02	SR
4141	Canaan Gap	1	M	1P	39	C	254	I	1,335		580		10 to 04	SR,AC
4100	Canaan Mountain	2	C	1P C	13	C	188	I	7,115	1,165			06 to 09	SR,AC,W
4020	Canaan Ranch	1	C	1P	2	C	24	I	3,335	10	1,685		06 to 10	SR,WS
4061	Canyon	1	M	2P D	17	C	119	I	560	5	325		10 to 05	CW,AC
4076	Castle Cliffs	1	I	2P D	79	C	514	I	12,225	2,150	495		11 to 05	T&E,AC,ISA
4093	Cedar Mountain	1	C	1P C	800	S	20	N	315	240	1,390		06 to 10	RIP,SR,WS
4011	Central	3	I	2P D	84	C	336	I	2,335		635	55 FS	11 to 04	
4012	Cinder Mountain	1	C	1P	2	C	24	I	1,990	395	770		03 to 02	CW,AC
4013	Coalpits	1	M	1P	48	C	96	I	1,030		1	4 NPS	11 to 12	IH
4068	Coalpits Custodial	1	C	1P	2	C	20	I	270	130	660		01 to 10	
4069	Coalpits Upper Mesa Cust.	1	C	1P C	16	C	32	I	1,500		1,110	80 NPS	10 to 12	
4026	Cottonwood	1	C	1P C	17	C	119	I	1,625	385			10 to 05	SR,AC,WS
4110	Cottonwood Point	1	C	1P C	49	C	244	I	3,035	225			03 to 02	SR,AC,W
4014	Cougar Canyon	1	C	2P DR	20	C	120	I	8,560			70 FS	06 to 10	WS,RIP,W
					4	H								
4095	Crystal Creek	2	C	1P C	48	C	216	N	2,795		3,535		06 to 10	T&E,RIP,SR
4015	Curly Hollow	7	M	3P D	248	C	1380	I	15,055	2,190	135	10 BIA	11 to 05	AC,T&E,RIP
4016	Dagget Flat	6	I	2P D	81	C	309	I	4,055			265 FS	06 to 09	RIP
4085	Dalton Wash	1	C	1P SL	2	C	24	I	610		730		03 to 02	
4018	Desert Inn	1	I	3P D	124	C	755	I	20,970	1,560	900	405 FS	11 to 05	T&E,RIP,W
				1P SL	124	C	496	I	14,980	90		405 FS	06 to 09	
4075	Diamond Valley	1	M	1P	40	C	80	I	1,865	90	140		10 to 11	
4019	Dome	2	M	2PR	70	C	251	I	1,880	10	895		12 to 05	T&E,SR,AC

Grazing Systems
C = Custodial
D = Deferred
DR = Deferred Rotation
RR = Rest Rotation
SL = Season Long
1P = One Pasture
2P = Two Pasture
3P = Three Pasture
4P = Four Pasture

Implementation Status
I = Implemented
P = Partially Implemented
N = Not Implemented

Constraints to Grazing Management

Threatened or Endangered Species	T&E	Critical Watershed	CW
Riparian Areas	RIP	ACEC	AC
Important Habitat (critical deer)	IH	Water (WPZ/Navajo Acq.)	W
Special Rec. Mgmt. Areas	SR	Wilderness	WS or WA

Livestock Kind
C = Cattle
S = Sheep
H = Horse

Management Category
I = Improve
M = Mountain
C = Custodial

Other Federal
FS - Forest Service
BIA - Bureau of Indian Affairs
NPS - National Park Service

TABLE 2-5 GRAZING SUMMARY 1986 (continued)

Allotment		Number of Permit-tees	Manage-ment Cate-gory	Grazing System	Livestock		Author-ized Use (AUMs)	Impl. Status	Acres				Season of Use	Grazing Mgmt. Con-straints
Num-ber (GIS)	Name				No.	Kind			Public	State	Private	Other Federal		
4073	Eagle	1	C	1P C	9	C	63	I	1,530	245	290		10 to 05	LW,AC
4096	East Deep Creek	1	C	1P	45	C	203	N	1,925		1,355		06 to 10	RIP,SR,WS
4072	Ep Creek	1	C	1P	1	C	12	I	3,520		735		03 to 02	SR,AC
4086	Fault	1	C	1P	11	C	39	I	680	55	955		12 to 04	T&E,RIP,CW
4021	Fort Pearce	4	C	2P D	116	C	812	I	9,245	2,120	1,925		11 to 05	RIP,SR,AC
4052	Goat Ranch	1	I	2P D	108	C	486	P	4,185	275			05 to 09	SR,AC,WS
4022	Gooseberry	2	M	3PR	39	C	234	I	3,950	860	420		11 to 04	CW
4097	Gordon Creek	1	C	1P	15	C	69	N	85		915		06 to 10	SR
4023	Gould Ranch	1	C	1P	5	H	25	I	560		105		10 to 02	RIP
4024	Grafton	1	C	1P	100	C	280	I	735	1,365			11 to 05	CW
4089	Grafton Wash	1	C	1P	8	C	36	I	1,735	130	25		12 to 04	T&E,RIP,CW
4090	Grapevine	1	C	1P	30	C	120	I	7,690	785			06 to 09	SR,AC,WS
4025	Gunlock	2	C	1P	65	C	494	I	6,385	1,295	125	330 BIA	10 to 05	T&E,SR,AC
4070	Gyp Hills	1	C	1P	1	C	8	I	850	8,405	375		10 to 05	T&E,RIP,CW
4081	Harrisburg	1	C	1P	50	C	150	I	1,715	1,035	870		03 to 05	SR,CW
4105	Herd House	1	M	1P	37	C	178	I	2,350	150	55		12 to 04	T&E,SR,AC
4082	Honeymoon Trail	1	M		165	C	1002	I	8,015	1,000			10 to 05	T&E,SR,CW
4027	Hurricane	1	M	1P	22	C	77	I	2,200		1,005		10 to 05	SR
4066	Hurricane Custodial	1	C	1P	1	C	12	I	480		1,400		03 to 02	
4028	Hurricane Fault	5	I	3P D	172	C	1120	I	7,295	1,480			10 to 05	RIP,CW,AC
4029	Hurricane Mesa	1	C	2P	44	C	200	I	5,440	10	1,320		12 to 04	IH,CW
4063	Hurricane Mesa Custodial	1	C	1P	4	C	48	I	2,935		1,640		03 to 02	IH,SR,CW
4030	Jackson Wash	4	I	3P D	280	C	1519	I	30,090	3,760	55		11 to 05	T&E,SR,W
4031	Lamoreaux	1	C	1P	2	C	11	I	530	230	1,485	595 NPS	05 to 10	SR,WS
4032	Land Hill	1	C	2P D	10	C	40	I		880	85		02 to 05	RIP,CW,AC
4079	LaVerkin	1	C	1P	300	S	68	I	1,795	195	35		11 to 12	IH,CW
4199	LaVerkin Creek	1	C	Trailing	230	C	99	I	11,540	770	1,180	15 NPS	Trailing	IH,RIP,SR
4080	Leeds	2	C	1P	60	C	182	I	2,600	75	570		02 to 05	T&E,RIP,SR
4084	Lindell	1	C	1P	1	C	12	I	25		10		03 to 02	
4033	Little Creek	1	I	4P D	110	C	608	I	11,600	1,935	425		10 to 05	CW,AC
4034	Little Plain	1	C	1P	4	C	16	I	565	15	270		11 to 02	CW,AC
4065	Magotsu	3	C	1P	5	C	35	I	1,410	570	975	145 FS	05 to 10	RIP
4094	Maxwell Canyon	1	C	1P	7	C	40	I	4,235	40	495		05 to 10	SR,AC,W,
4067	Mesa Custodial	1	C	2P	3	C	17	I	985	65	255		05 to 10	IH
4036	Minera Wash Intensive	3	C	1P	73	C	219	I	3,705				03 to 05	
4035	Moody Wash	1	C	1P	4	C	30	I	580		120		10 to 02	RIP

Grazing Systems
C = Custodial
D = Deferred
DR = Deferred Rotation
RR = Rest Rotation
SL = Season Long
1P = One Pasture
2P = Two Pasture
3P = Three Pasture
4P = Four Pasture

Implementation Status
I = Implemented
P = Partially Implemented
N = Not Implemented

Constraints to Grazing Management

Threatened or Endangered Species	T&E	Critical Watershed	CW
Riparian Areas	RIP	ACEC	AC
Important Habitat (critical deer)	IH	Water (WPZ/Navajo Acq.)	W
Special Rec. Mgmt. Areas	SR	Wilderness	WS or WA

Livestock Kind
C = Cattle
S = Sheep
H = Horse

Management Category
I = Improve
M = Mountain
C = Custodial

Other Federal
FS - Forest Service
BIA - Bureau of Indian Affairs
NPS - National Park Service

TABLE 2-5 GRAZING SUMMARY 1986 (continued)

Allotment Number (GIS)	Allotment Name	Number of Permittees	Management Category	Grazing System	Livestock No.	Livestock Kind	Authorized Use (AUMs)	Impl. Status	Acres Public	Acres State	Acres Private	Acres Other Federal	Season of Use	Grazing Mgmt. Constraints
4037	Mountain Dell	1	C		21	C	48	I	1,530	375	100		10 to 12	CW
5159	New Harmony	1	C	4P RR	130	C	478	I	7,080	800	1,805	270 FS	05 to 09	IH,SR,W
4038	North Grafton	1	C	1P	2	C	14	I	395	30	380		11 to 05	
4120	Oil Well	1	C	1P	5	C	25	I	1,440	60	555		09 to 04	T&E,RIP,CW
4091	Park	1	C	1P	2	C	24	I	650				03 to 02	T&E,RIP,WS
4077	Pintura Seeding	1	C	1P	33	C	91	I	2,890	1,695	610	140 NPS	01 to 05	T&E,IH,RIP
4064	Race Track	1	C	1P	6	C	33	I	95	595	1,700		12 to 05	
4039	Red Butte	1	C	1P	2	C	14	I	645	70	745	5 NPS	03 to 02	IH,SR,WS
4040	Red Cliffs	2	M	2P D	85	C	410	I	5,085	1,690	1,370	305 FS	12 to 05	WS,T&E,SR
4098	Riverview Ranch	1	C	1P	2	C	24	I	570	10	30		03 to 02	CW
4041	Rock Spring	1	C	1P	1	C	12	I	1,050	295	2,365		08 to 11	IH,SR,CW
					1	S								
4103	Rockville	1	C	1P	3	C	12	I	300	225	275		01 to 02	IH
5269	Russel Fields	1	C	1P	5	C	60		1,195	25	760		03 to 02	SR,AC,WSA
4042	Sand	1	I	3P D	89	C	497	I	5,225	610	100		11 to 05	SR,CW
4043	Sand Cove Reservoir	1	C	1P	2	C	15	I	720		895		10 to 05	WS,SR,AC
4044	Sand Hills	1	C	1P	5	C	28	I	1,225	200	2,270		10 to 05	T&E,RIP,SR
4045	Sand Mountain	1	I	2P D	222	C	1554	P	14,040	760	700		10 to 05	SR,CW
4062	Sand Wash Custodial	1	C	1P	4	C	26	I	4,170	345	440		03 to 02	WS,T&E,SR
4046	Sandstone Mountain	1	C	1P	230	C	109	I	2,035		370		05 to 06	T&E,RIP,SR
4071	Santa Clara Creek Cust.	1	C		2	C	12	I	285		205	5 BIA	12 to 02	
4047	Santa Clara Creek Int.	1	I	2P D	16	C	78	I	2,745		160		03 to 05	RIP,CW,AC
4048	Scarecrow Peak	6	I	4P D	615	C	4515	I	44,145	5,060	445	150 FS	11 to 05	T&E,RIP,AC
4087	Segler	1	C	1P	1	C	3		785	35	445		05 to 09	IH
4050	Smith Mesa	1	C	1P	3	C	36	I	1,850		920		03 to 02	IH
4051	Stout Custodial	1	C		1	C	2	I	210		65		01 to 02	CW,AC
4074	Terrace	1	I	4P R	25	C	252	I	4,390	740			10 to 05	CW,AC
4088	Toquerville	2	C	1P	31	C	143	I	4,540	1,410	745		01 to 05	T&E,IH,SR
4053	Trail	1	M	1P	40	C	240	N	2,975	175	795		03 tp 05	CW
4054	Twin Peaks	1	I	3P R	137	C	754	I	17,005	1,375	505		12 to 05	T&E,RIP,W
				1P SL	71	C	320		12,760		770	215 FS	06 to 10	
4055	Veyo	2	I	4P R	100	C	742	I	17,425	1,445	1,785	65 FS	11 to 05	WS,SR,AC
4056	Virgin	1	I	2P D	42	C	144	I	3,495	805	515		11 to 05	T&E,IH,RIP
4057	Warner Ridge	1	M	1P	15	C	65	I	2,125		450		12 to 05	T&E,SR,AC
4092	Warner Valley	1	C	1P	17	C	124	I	865	105	320		12 to 05	SR,CW
4058	Washington	1	M	1P	45	C	245	I	10,045	5,155	130		12 to 02	T&E,SR,W
4133	Wells Spring	1	C	1P	5	C	33	I	2,005	385	1,235		06 to 02	SR,AC,WS
4106	West Deep Creek		C	1P	500	C	180	N	2,045		4,325	30 NPS	None	SW,T&E,SR
4059	White Dome	1	M	1P	50	C	100	I	1,565		10		01 to 02	RIP
4060	Yellow Knolls Custodial	2	C	1P	2	C	16	I	945		915		10 to 05	T&E,W

Grazing Systems

C = Custodial
D = Deferred
DR = Deferred Rotation
RR = Rest Rotation
SL = Season Long

1P = One Pasture
2P = Two Pasture
3P = Three Pasture
4P = Four Pasture

Implementation Status

I = Implemented
P = Partially Implemented
N = Not Implemented

Constraints to Grazing Management

Threatened or Endangered Species	T&E	Critical Watershed	CW
Riparian Areas	RIP	ACEC	AC
Important Habitat (critical deer)	IH	Water (WPZ/Navajo Acq.)	W
Special Rec. Mgmt. Areas	SR	Wilderness	WS or WA

Livestock Kind

C = Cattle
S = Sheep
H = Horse

Management Category

I = Improve
M = Mountain
C = Custodial

Other Federal

FS - Forest Service
BIA - Bureau of Indian Affairs
NPS - National Park Service

TABLE 2-6

Ongoing and Incompleted HMP Objectives

Objective	Status
Increase cover around water developments by ponding all excess water at pipeline terminus and fencing a portion of ponds and reservoirs.	Ongoing
Improve the diversity and palatability of browse species on approximately 500 acres of mule deer winter range by chaining and reseeding.	Not Started
Stop encroachment of pinyon-juniper on 7,500 acres of critical mule deer winter range by allowing greenwood cutting.	Ongoing
Enhance 109,000 acres of desert bighorn sheep habitat in the Beaver Dam and Red Mountain areas by constructing 14 water catchments.	Two catchments constructed
Improve 7,000 acres of Gambel's quail habitat by developing 11 catchments in areas presently without permanent water.	Four catchments constructed
Improve 45 acres of Gambel's quail brood habitat by fencing and planting fourwing saltbrush and desert almond to increase vegetation density from 25 to 35 percent	Not started
Improve habitat for nongame species by planting cottonwood, willow, and Russian olive on approximately 40 acres adjacent to the Virgin River to increase diversity of canopy-forming vegetation.	Not started
Increase the percentage of Siler cactus in the 0-4 cm size class from 6 to 15 percent by natural increase on Warner Ridge.	Ongoing
Establish alternative areas for ORV use where the dwarf bear-poppy does not occur.	Not started

TABLE 2-7

WILDLIFE FORAGE ALLOCATION BY ALLOTMENT

HERD UNIT	ALLOTMENT	MULE DEER SEASON OF USE	FORAGE NEEDS	FORAGE AVAILABLE
58	Pace Knoll [1]	W, Sp	30	3
58	LaVerkin Creek [2]	W, Sp	269	269
58	Red Butte	W, Sp	75	-2
58	Black Canyon [3]	W, Sp	100	8
58	Lamoreaux [3]	W, Sp	100	-2
58	Rock Springs [3]	W, Sp	100	-2
58	Hurricane Mesa [4]	W, Sp	280	280
58	Smith Mesa [3]	W, Sp	110	137
58	Mesa [3]	W, Sp	80	100
58	Coal Pits	W, Sp	100	116
58	Dalton Wash	W, Sp	40	41
58	Virgin [4]	W, Sp	100	144
58	Fault	W, Sp	0	-
58	Toquerville [4]	W, Sp	200	233
58	Sand Hills	W, Sp	10	50
58	Sandstone Mountain	W, Sp	10	65
58	Red Cliffs (East I-15) [4]	W, Sp	64	128
58	Sand Mountain [4]	W, Sp	50	663
58	Airport	W, Sp	10	-2
58	Dome [4]	W, Sp	25	64
58	White Dome	W, Sp	15	43
58	Warner Ridge	W, Sp	15	23
58	Herd House	W, Sp	10	29
58	Fort Pearce [4]	W, Sp	10	562
58	Hurricane	W, Sp	20	38
58	Hurricane Fault [4]	W, Sp	70	72
58	Gooseberry	Y	70	70
58	Grafton	Y	90	90
58	Little Creek Mountain	Y	50	59
58	North Grafton	Y	-	-2
58	Stout	W, Sp	10	-2
58	Trail	W, Sp	10	110
58	Boot Spring	Y	10	90
58	Little Plain	W	15	-2
58	Cinder Mountain	W	50	-2
58	Short Creek	W	70	75
59	Big Plains	W, Sp	22	17
59	Buttermilk	W, Sp	15	109
59	Canaan Mountain	Sp, Su	225	514
59	Canaan Ranch	W, Sp	22	62
59	Cottonwood	W, Sp	12	125
59	Cottonwood Point	W, Sp	60	486
59	Goat Ranch	W, Sp	45	577
59	Grafton Mesa	W, Sp	21	70
59	Grafton Wash	W, Sp	15	122
59	Grapevine	W, Sp	30	116
59	Horse Valley	W, Sp	60	219

TABLE 2-7 (Continued)

WILDLIFE FORAGE ALLOCATION BY ALLOTMENT

HERD UNIT	ALLOTMENT	MULE DEER SEASON OF USE	FORAGE NEEDS	FORAGE AVAILABLE
59	Maxwell Canyon	W, Sp	22	155
59	Park	W, Sp	7	45
59	Riverview Ranch	W, Sp	45	64
59	Rockville	W, Sp	7	22
59	Russel Fields	W, Sp	7	58
59	Upper South Creek	W, Sp	45	88
59	Well Springs	W, Sp	22	77
61A	Yellow Knolls	W, Sp	10	0
61A	Washington	W, Sp	120	306
61A	Red Cliffs (West I-15)[4]	W, Sp	36	72
61A	Sandy Wash	W, Sp	50	-2
61A	Pintura Seeding	W, Sp	75	47
61A	Black Ridge	W, Sp	225	290
61B	Castle Cliffs	W, Sp	-	341
61B	Apex Slope	W, Sp	75	130
61B	Curly Hollow	W, Sp	200	491
61B	Box Canyon	Y	10	-2
61B	Boomer Hill	Y	75	89
61B	Santa Clara Creek	Y	75	69
61B	Land Hill	Y	25	27
61B	Alger Hollow [4]	W, Sp	1,110	1,111
61B	Veyo	W, Sp	230	234
61B	Central	W, Sp	70	74
61B	Sand Wash	W, Sp	25	7
61C	Cougar Canyon	Y	720	766
61C	Big Mountain	Y	760	810
61C	Bull Mountain	W, Sp	1,110	1.131
61C	Dagget Flat	Y	440	516
61C	Desert Inn	Y	2,240	2,452
61C	Twin Peaks	Y	1,540	1,539
61C	Minera Wash	W, Sp	340	427
61C	Scarecrow Peak	W, Sp	750	900
61C	Jackson Wash	W, Sp	550	682
61C	Beaver Dam Slope	Y	99	1,285
61C	Veyo (Snow Holding Past.)	W, Sp	-	427
61C	Gunlock	W, Sp	50	80

[1] Use terminated in 1967

[2] These allotments were not surveyed

[3] Heavy utilization of forage on private lands occur in these allotments

[4] Consolidation of allotments

[5] Allotments in West Zion Area were not surveyed

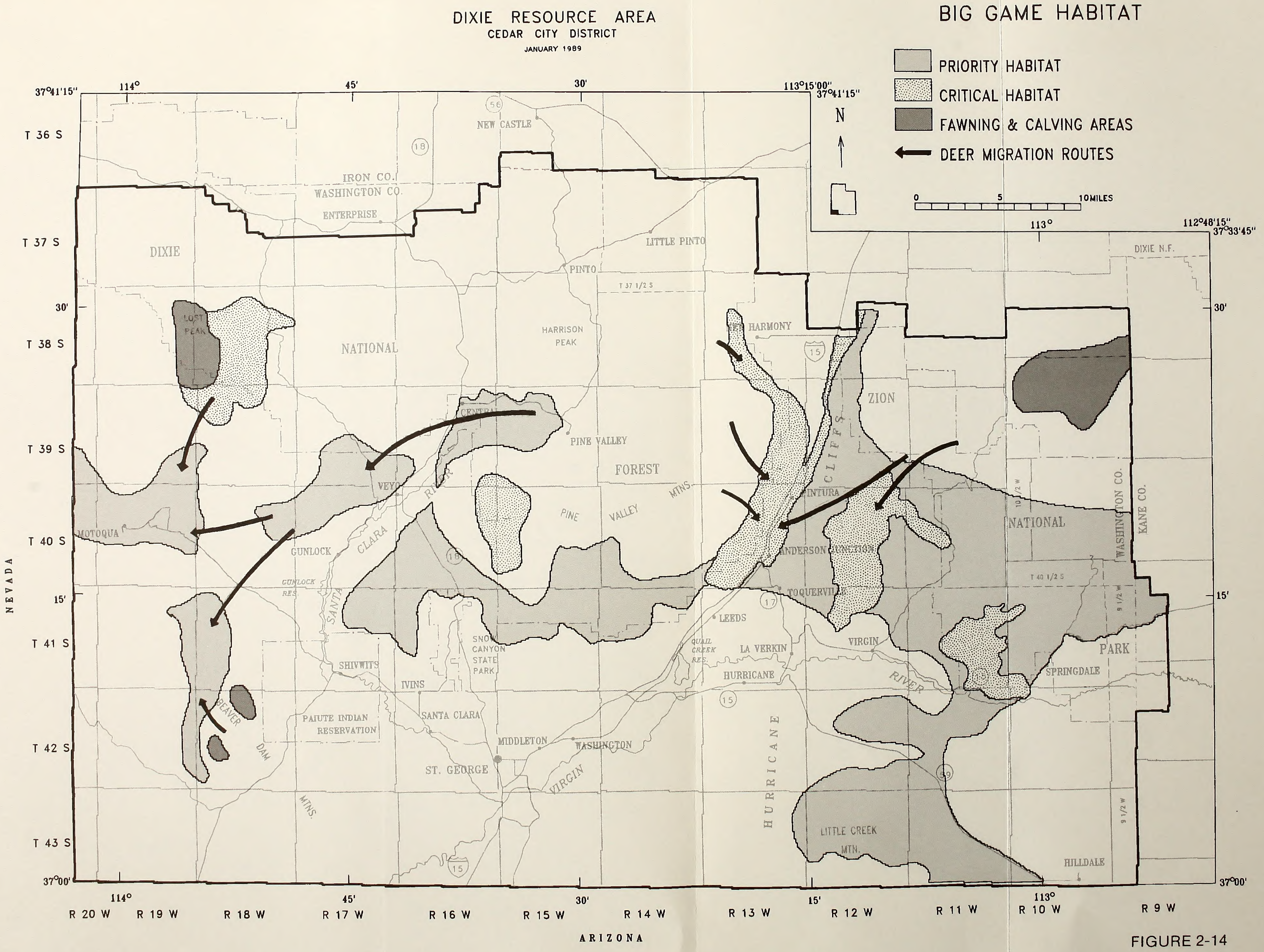

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989
BIG GAME HABITAT
▨ PRIORITY HABITAT
▨ CRITICAL HABITAT
▨ FAWNING & CALVING AREAS
← DEER MIGRATION ROUTES
N
0 5 10 MILES
37°41'15"
114°
45'
30'
113°15'00"
37°41'15"
113°
112°48'15"
37°33'45"
30'
15'
37°00'
T 36 S
T 37 S
T 37 1/2 S
T 38 S
T 39 S
T 40 S
T 40 1/2 S
T 41 S
T 42 S
T 43 S
R 20 W
R 19 W
R 18 W
R 17 W
R 16 W
R 15 W
R 14 W
R 13 W
R 12 W
R 11 W
R 10 W
10 1/2 W
9 1/2 W
R 9 W
NEVADA
ARIZONA
IRON CO.
WASHINGTON CO.
KANE CO.
DIXIE N.F.
NEW CASTLE
ENTERPRISE
LITTLE PINTO
PINTO
DIXIE
NATIONAL
FOREST
HARRISON PEAK
LOST PEAK
CENTRAL
PINE VALLEY
PINE VALLEY MTNS.
VEYO
SANTA CLARA RIVER
MOTOQUA
GUNLOCK
GUNLOCK RES.
NEW HARMONY
PINTURA
ZION
NATIONAL
PARK
CLIFFS
ANDERSON JUNCTION
TOQUERVILLE
LEEDS
QUAIL CREEK RES.
LA VERKIN
VIRGIN
HURRICANE
VIRGIN RIVER
SPRINGDALE
SNOW CANYON STATE PARK
SHIVWITS
IVINS
PAIUTE INDIAN RESERVATION
SANTA CLARA
MIDDLETON
WASHINGTON
ST. GEORGE
BEAVER DAM MTNS.
HURRICANE
LITTLE CREEK MTN.
HILLDALE
15
17
18
56
59
9

FIGURE 2-14

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

THREATENED AND ENDANGERED SPECIES

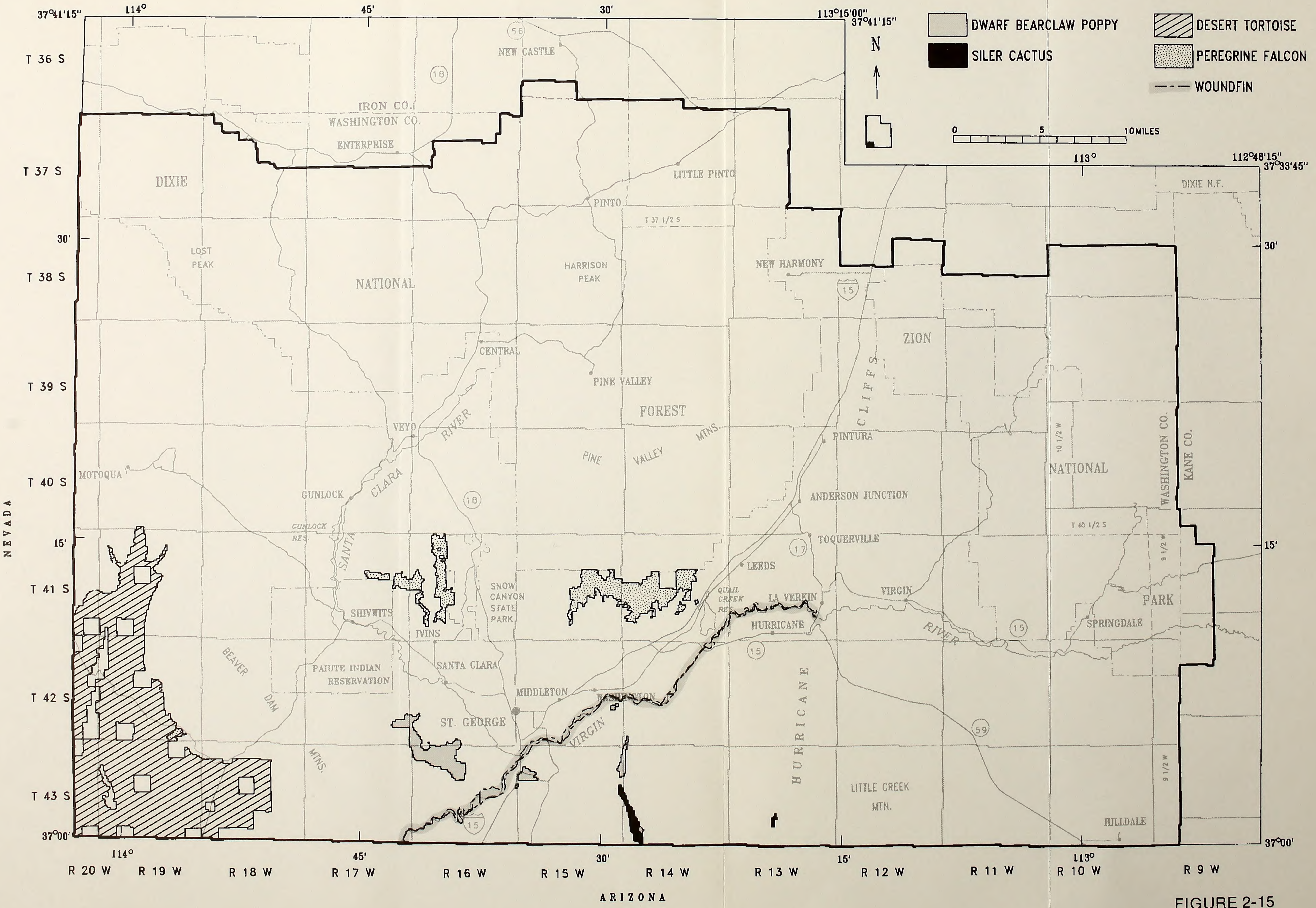


FIGURE 2-15

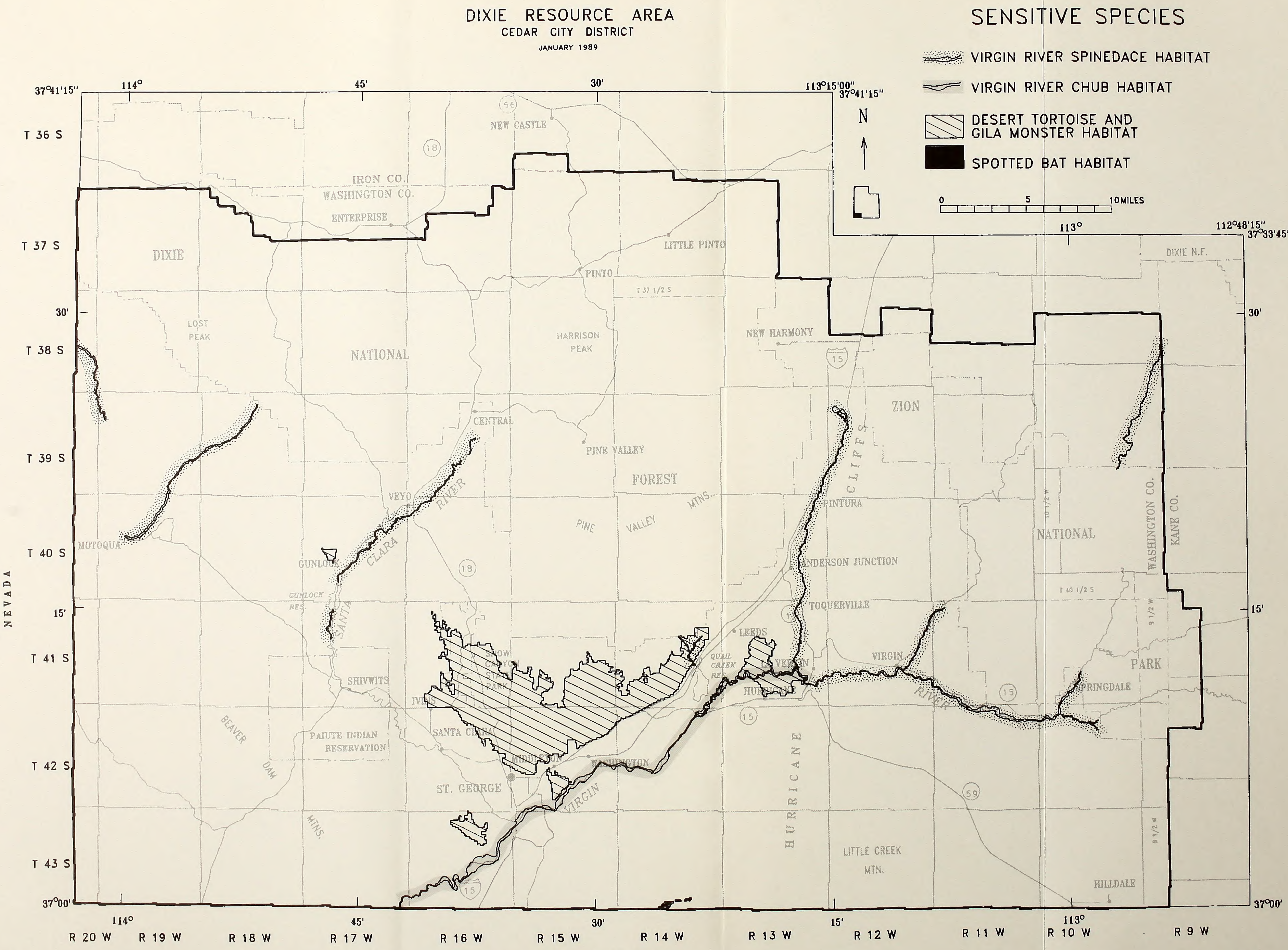

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989
SENSITIVE SPECIES
VIRGIN RIVER SPINEDACE HABITAT
VIRGIN RIVER CHUB HABITAT
DESERT TORTOISE AND GILA MONSTER HABITAT
SPOTTED BAT HABITAT
N
0
5
10 MILES
37°41'15"
114°
45'
30'
113°15'00"
37°41'15"
113°
112°48'15"
37°33'45"
30'
15'
37°00'
T 36 S
T 37 S
T 37 1/2 S
T 38 S
T 39 S
T 40 S
T 40 1/2 S
T 41 S
T 42 S
T 43 S
R 20 W
R 19 W
R 18 W
R 17 W
R 16 W
R 15 W
R 14 W
R 13 W
R 12 W
R 11 W
R 10 W
R 10 1/2 W
R 9 1/2 W
R 9 W
NEVADA
ARIZONA
IRON CO.
WASHINGTON CO.
KANE CO.
NEW CASTLE
ENTERPRISE
LITTLE PINTO
PINTO
DIXIE
NATIONAL
FOREST
DIXIE N.F.
LOST PEAK
HARRISON PEAK
NEW HARMONY
ZION
NATIONAL
PARK
CENTRAL
PINE VALLEY
PINE VALLEY MTNS.
CLIFFS
PINTURA
ANDERSON JUNCTION
TOQUERVILLE
LEEDS
QUAIL CREEK RES.
VEYO
SANTA CLARA RIVER
MOTOQUA
GUNLOCK
GUNLOCK RES.
SHIVWITS
IVINS
SNOW CANYON STATE PARK
SANTA CLARA
PAIUTE INDIAN RESERVATION
BEAVER DAM MTNS.
MIDDLETON
WASHINGTON
ST. GEORGE
VIRGIN
VIRGIN RIVER
LA VERKIN
HURRICANE
SPRINGDALE
LITTLE CREEK MTN.
HILLDALE
56
18
15
17
59

FIGURE 2-16

The status of the purple-spined hedgehog cactus as a valid plant variety has been questioned by many botanists. This cactus is now thought to be merely a color phase of the common Engelman hedgehog cactus and has been proposed for delisting by the U. S. Fish and Wildlife Service (Federal Register, Vo. 54, No. 12, Thursday, January 19, 1989). All federal actions impacting T&E species or their habitat require consultation with the Fish and Wildlife Service for a determination of species jeopardy. Sensitive species do not require a Fish and Wildlife Service consultation, but they are managed in a manner so as to prevent the need for T&E status.

Forestry

There are no commercial forest resources in the Resource Area. Under the climatic and edaphic conditions in the area, it takes about 150 years for a pinyon or juniper tree to reach 8-10 inches in diameter. Therefore, all woodland is considered extensive and managed under multiple use prescriptions. There are approximately 95,000 acres of pinyon/juniper. However, only 35,800 acres are suitable for the non-commercial harvest of fuelwood, cedar posts or Christmas trees. Totaled, there are less than 200,000 cords of wood which allows for a sustained production of about 1,200 cords, 2,000 posts, and 500 Christmas trees per year. Other vegetative products managed under the forestry program include the small scale sale of yucca for the production of shampoo; desert plants for home and commercial landscaping; creosote and manzanita are sometimes harvested for bird perches. Average annual harvest for the last 10 years has been 4,070 cords of fuelwood, 1,600 posts, 1,190 Christmas trees, 40 Joshua trees, 100 cactus, 7,700 pounds of yucca and 500 pounds of decorative shrubs. Riparian zones and wilderness areas are closed to harvesting firewood. Harvestable forestry resources are displayed in Fig. 2-17.

Hazardous Waste Management

Currently, there are no hazardous waste receptacle facilities within Washington County. The only approved site within Utah is located in Tooele County, approximately 280 miles to the north of St. George. No hazardous waste disposal site needs have been identified within the Resource Area. None of the local industry has been listed by the Utah Division of Solid and Hazardous Waste as hazardous waste generators.

Fire

During the last 15 years, 171 fires have been reported on public land within the DRA. One hundred and thirty eight (138) of these fires were lightning caused and burned 6,293 acres. The number of lightning fires from 1972-86 varied from 0 to 33 per year. Lightning fires averaged 45 acres in size. Approximately 45 percent of all fires in the Resource Area are one-quarter of an acre or less in size.

Full Suppression and Conditional Suppression are the two general suppression strategies that are defined for the Resource Area. Some lands of other agencies are administered as suppression areas through cooperative agreements.

An intensive suppression strategy is identified in full suppression areas to completely suppress fires to prevent loss of life, property and unacceptable resource damage.

FORESTRY AND PLANT PRODUCTS

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

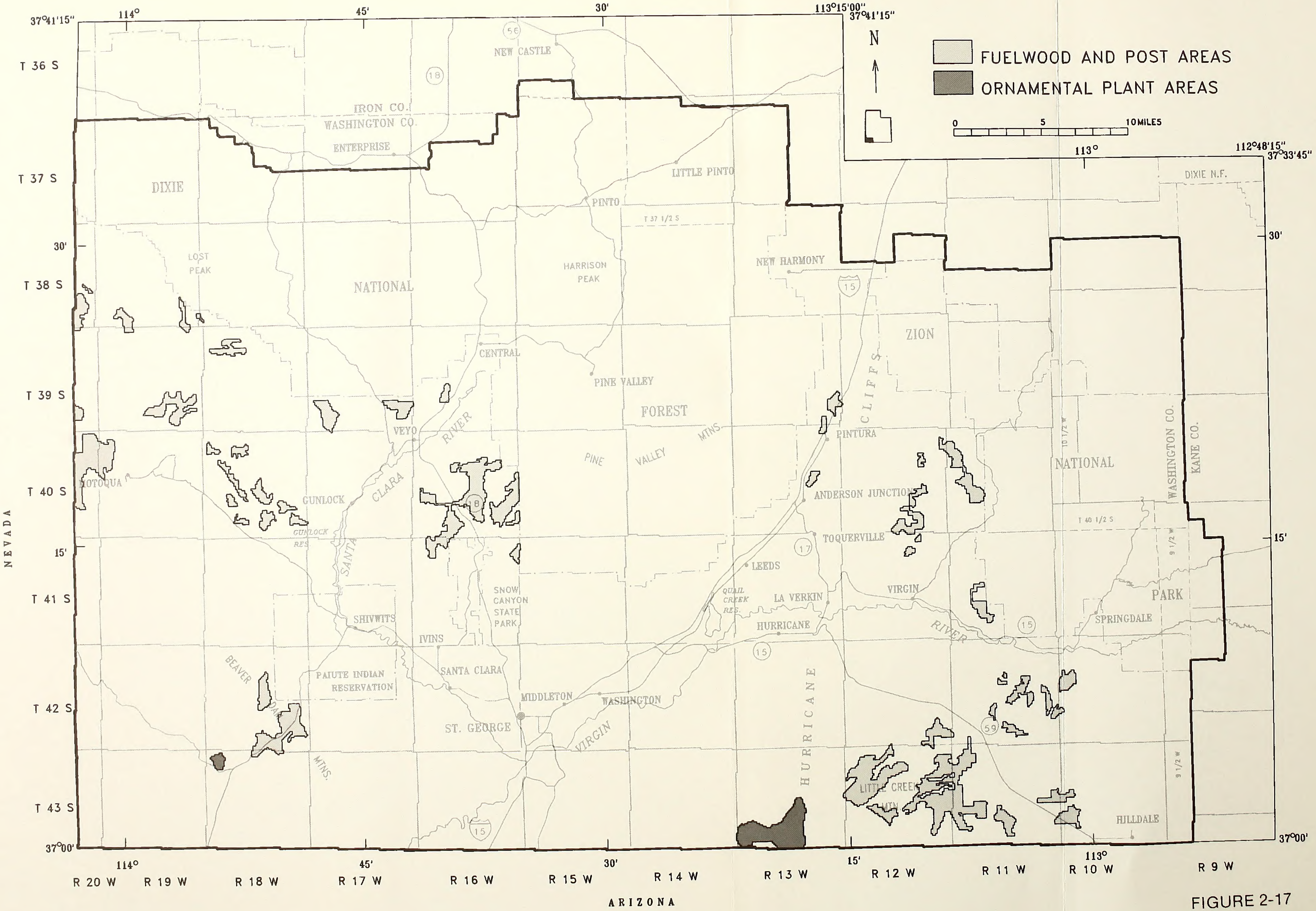


FIGURE 2-17

The following specific locations and resources are determined to be full suppression areas within DRA.

Recreation

- Baker Dam
- Red Cliffs

Wildlife

- Riparian Areas
- Desert Tortoise Areas
- Critical Mule Deer Winter Areas
- Critical Gambel's Quail Areas

Improvements

- Powerline Corridors
- Communications Sites (5)

The rest of the Resource Area is considered conditional suppression. Fires in conditional suppression areas are managed on a least cost basis. Normally, the conditional suppression strategy is identified in areas where fires will not cause unacceptable resource damage, or where access by fire fighting equipment is generally unsatisfactory. The specific level of suppression to be applied will be determined when initial attack forces and a resource advisor arrive at the fire and determine appropriate actions based on objectives, constraints, and the conditions at the time of the fire start.

The following are the conditions which restrict and constrain fire suppression and fire management activities which occur on public land within the DRA. These constraints will be adhered to while suppression forces are taking action on any prescribed or wildfires within the Resource Area:

Aircraft may be used as tactical or support equipment to suppress any fire during daytime hours only.

Resource concerns and potential damage to resources as determined by a resource advisor will be considered when developing the tactical plan in suppressing any extended attack fire in full and conditional suppression areas.

Apply full suppression to fires threatening full suppression areas, surface improvements or private, state or other agency land. Suppression action will not be taken when such activities will impair the wilderness characteristics of an area.

Use of heavy equipment or other causes of substantial surface disturbance must be avoided in taking action on fires where known archaeological sites exist.

Aggressive suppression action will be taken on all areas where slope, soil type, amount of vegetation cover, or other factors are such that fire will cause excessive soil erosion and/or invasion of undesirable plant species. No vehicle traffic is to be permitted on slopes of 30 percent or more and on gypsum land type areas. Vehicle traffic is restricted to the contour of the slope on soil areas with a severe erosion hazard with slopes of less than 30 percent. No burn acreage of 1,280 acres will be permitted on soil areas of severe erosion hazard, major saline and gypsum areas and high sediment yield soil areas.

Aggressive suppression action will be taken on all areas where fire will have an undesirable impact on the visual and scenic quality of that area. Impact will be determined through application of the Simple Approach Smoke Estimation Model (SASEM).

Aggressive suppression action will be taken on all areas where T&E plant species have been located and mapped. The intent is to protect the T&E plant species and their habitat that would be negatively effected. Fire suppression vehicle use is not allowed in T&E species habitats.

Aggressive suppression will be taken on or near all areas which are of riparian type vegetation to protect these existing and/or potential resource values.

Suppression action will be taken on areas which have been identified as critical mule deer winter range to protect the forage and habitat resource for these wildlife.

Suppression action will not be taken when activities are a hazard to firefighters or cause excessive damage to equipment.

Fires must be extinguished if actual or predicted condition Class V or red flag burning conditions or probable extreme fire behavior may exist.

Socioeconomics

Washington County was settled by Mormon immigrants for agricultural purposes and the county has been directly dependent upon agriculture (especially the livestock industry) until rather recently. However, during the past 30 years this has dramatically changed toward a trade service and government oriented economy. Within a 16-year period between 1970-1986, the population in the county increased from 7,097 to 39,100. The Utah Office of Planning and Budget projections indicate 51,000 people by the year 2000 at a 2.17 percent annual increase. Along with the population came an evolution in values and attitudes from rural fundamentalism toward urban liberalism. As recently as 10 years ago, dancing could not occur in an establishment selling beer!

The Five County Association of Governments keeps up-to-date statistics on county economic and social factors. The following figures display current populations, employment trends and per capita personal incomes.

The subsequent discussion describes the DRAs role in county socioeconomics.

With the exception of the Silver Reef boom during the early 1900s, and the present Tenneco gold mining operation at Goldstrike, minerals have played an insignificant roll in the economic development of Washington County. However, for many families with longtime roots in the county, mining claims have the social importance of heirlooms and have been passed down through generations with the optimism that "someday they might be worth something".

Saleable minerals from the public lands have contributed a significant social roll, in that large amounts of fill materials (both free use and sales) have been utilized for the construction of highways, roads, shopping malls, condominiums, schools, etc., and many tons of decorative stone from BLM land have been used for the "red rock" landscaping motif common throughout the county. Leasable minerals have not ever been significant social or economic considerations in the DRA.

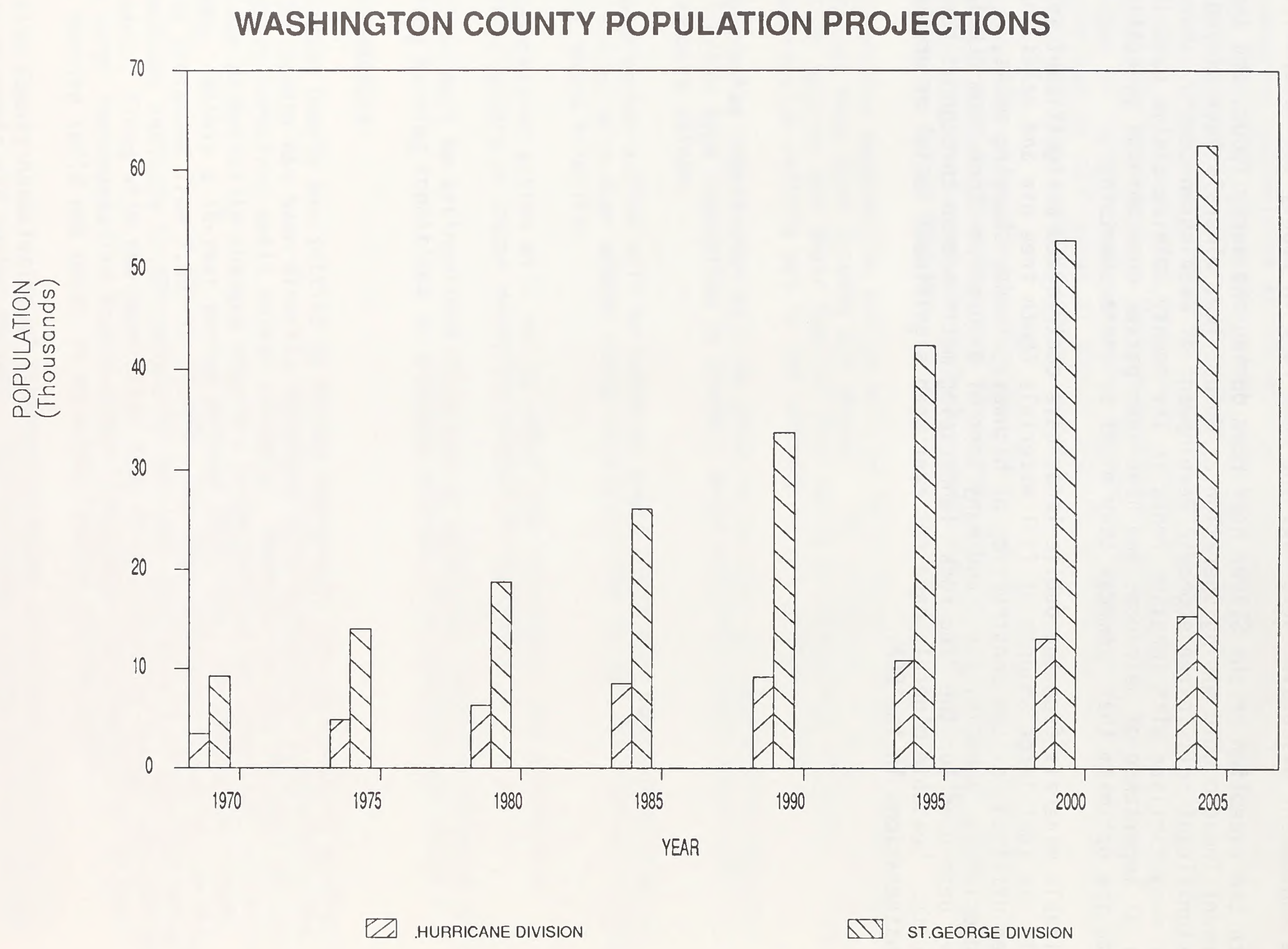


Fig. 2-18 - Five County Association of Governments, Virgin River Basin Study (January 1989)

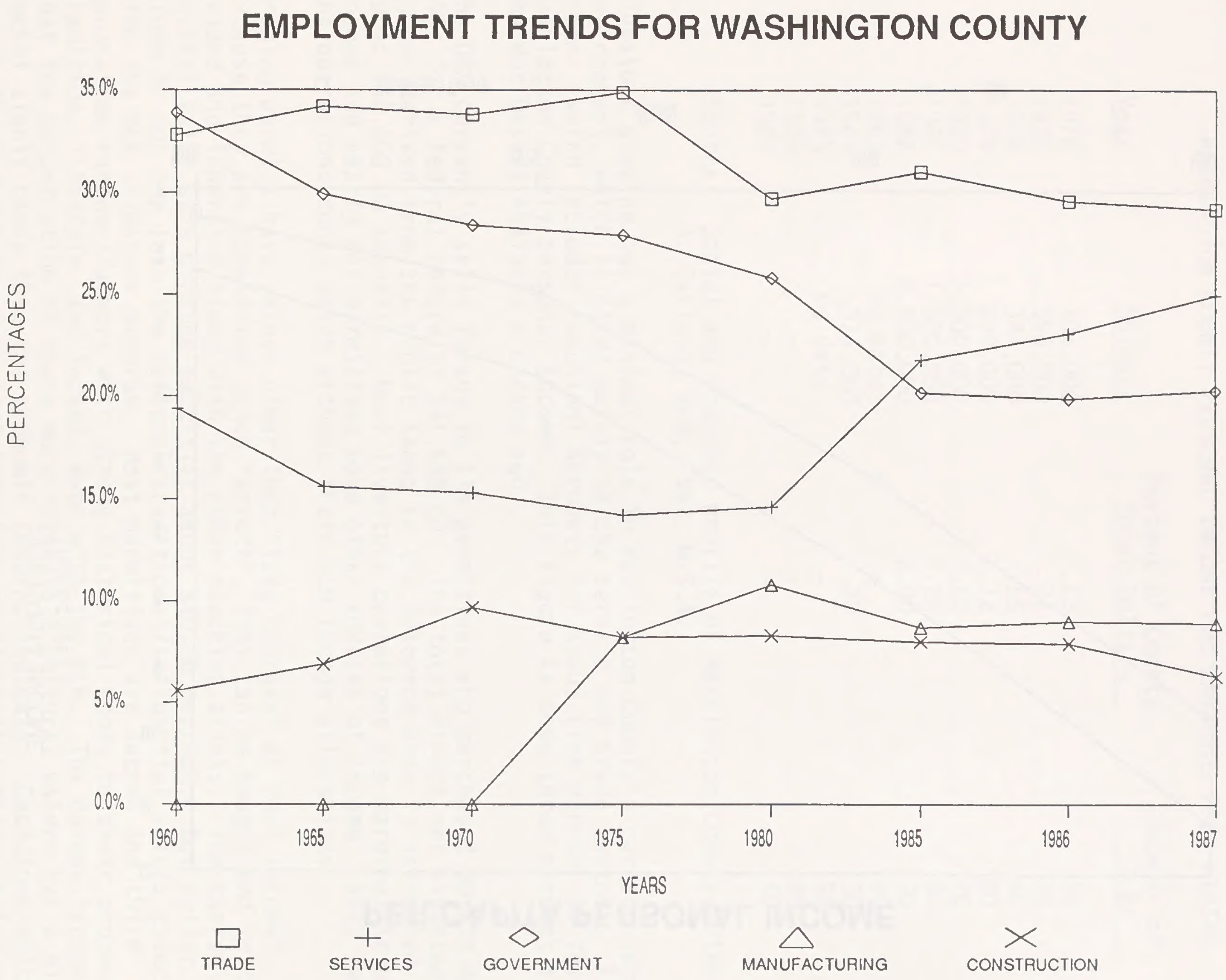


Fig. 2-19 - Five County Association of Governments, Virgin River Basin Study (January 1989)

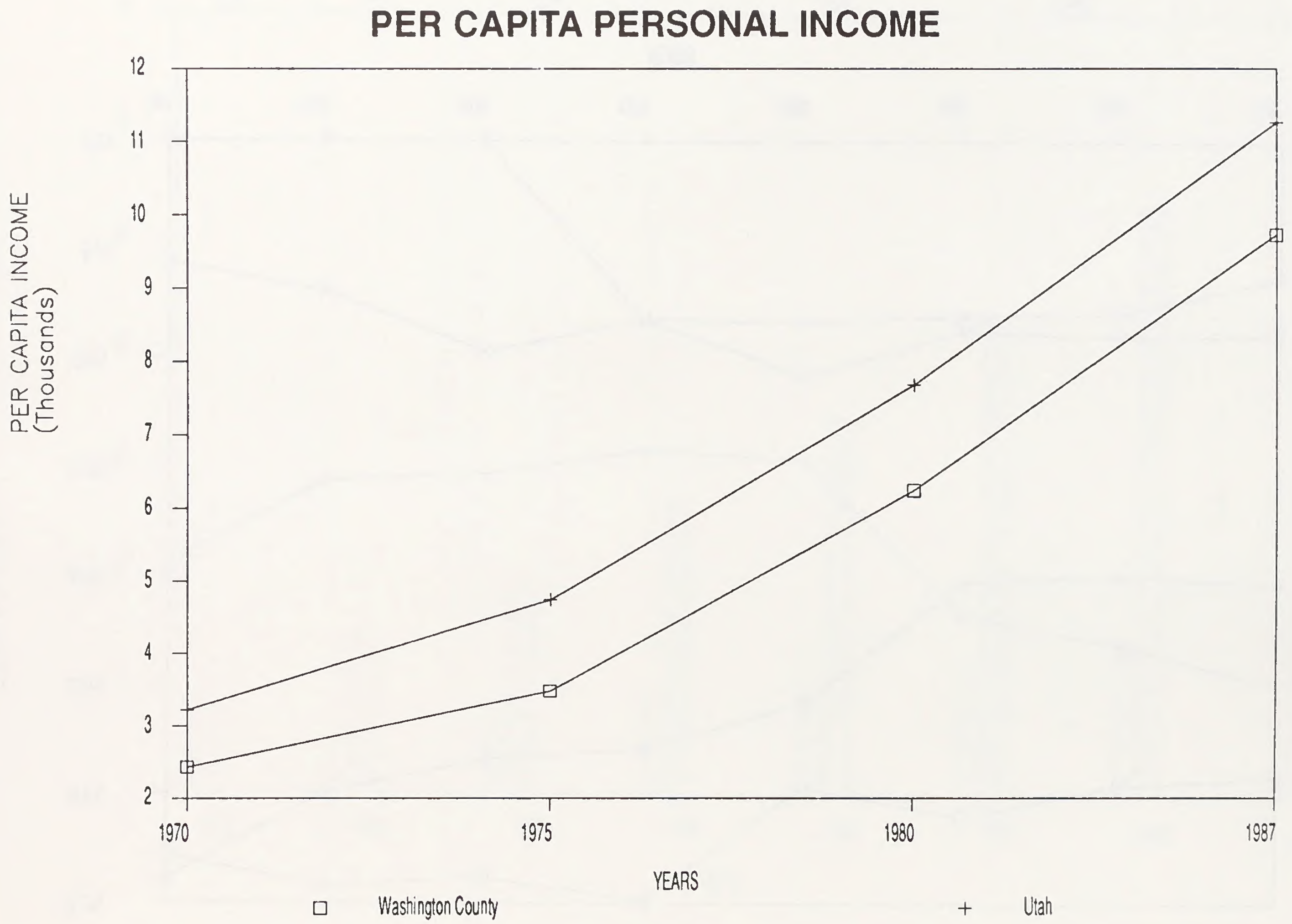


Fig. 2-20 - Five County Association of Governments, Virgin River Basin Study (January 1989)

The following Table 2-8 illustrates the economic importance of the mineral industry in Washington County since 1976:

Table 2-8

WASHINGTON COUNTY PERSONAL INCOME AND EARNINGS FROM MINING

Year	Dollars	Percent of County Total Dollars	Number of Jobs
1976	101,000	.23	10
1977	396,000	.76	30
1978	344,000	.55	40
1979	849,000	1.12	60
1980	1,300,000	1.60	70
1981	1,000,000	1.20	60
1982	2,800,000	2.90	130
1983	No date	-	140
1984	374,000	.30	30
1985	No date	-	56
1986	-	-	80
1987	-	-	60

Source: Social and economic profile of Washington County, Utah
J. Carlson, BLM, 1987, M.S.A.

Livestock grazing has a minimal role in Washington County's current economic environment, which is based mainly in the service and trade sectors. Farming income (which includes ranching) accounts for about five percent of the Washington County personal income. This figure is down three percent since the Hot Desert Analysis a decade ago.

The DRA currently sells forage to 114 permittees who purchased 30,878 AUMs in 1987 for a federal return of $41,685.00. The total direct net livestock income derived from the public lands in the Resource Area is estimated to be about $50,000.00 annually. Most livestock operations are marginal in net income and nearly all permittees have other sources of income. Very few of the operations could exist without their BLM forage allocations.

Grazing permits have values other than "fees charged" or "net income". Because they are considered ranch "assets", they can be bought and sold, traded and inherited along with the other ranching assets. The current capital value of a grazing permit is about $40.00 per AUM. But dollar values alone do not tap into the cultural/traditional/influential values associated with the BLM livestock program. Most permittees are second and third generation rancher/farmers with strong historical bonds to their property, tradition, lifestyle, and indeed, even with the BLM. The Bureau recognizes that the perpetuation of these more intangible cultural values has a higher social significance than the economic returns indicate. Decisions which impact the grazing programs must take into consideration these social values.

The majority of the woodland products sold are for noncommercial use, with the commercial use by small part-time, proprietor-owned and run enterprises. There are numerous individuals who sell retail firewood, which is predominantly imported from surrounding counties. The DRA also supplies a significant portion of ornamental plants and Christmas trees used in the county. Accurate estimates of total amount of fuelwood consumed in Washington County is not available, but is estimated to be in excess of 10,000 cords per year. The DRA currently supplies approximately eight percent of that total volume consumed. Although private use of fuelwood is not reflected in commonly available economic statistics, local expenditures associated with harvest of vegetative products contribute to the local income and employment.

The major water uses in Washington County, in order of volume used, are irrigation, municipal, industrial, and stock watering. Water use figures compiled by the State of Utah indicate that water use in Washington County in 1983 was 13,377 acre/feet.

Sediment can interfere with the use of many capital investments (streets, buildings, sewers, reservoirs, and irrigation ditches). Either the sediment has to be removed to regain use of the capital investment, or use will deteriorate over time. Sedimentation removal has not been a problem to culinary water users in Washington County. This is due to the fact that the vast majority of the water currently being used is from springs and wells. Sedimentation is going to be a concern in the future, as water from reservoir sites is treated for culinary use.

Communities with simple filtration and chlorination systems can handle peak sediment loads of 10 to 15 mg/l. The increased cost of using a coagulation filtration system, which can handle a wide range of sediment loads, depends on treatment plant size. For service areas of fewer than 25,000 people, the increased cost would vary from $15 to $30 per person served. Increased sedimentation also increases the amount of sludge needing to be removed from water treatment plants. These costs appear to vary by plant size, however, the average costs have been reported to be $20 per day.

Salt loading costs to the Colorado River system from the public lands is unknown. A preliminary sediment and salt yield analysis was conducted on the White Hills and Warner Ridge areas identified as candidate ACECs. The survey indicated that the current sediment and salt yield were 0.96 and 0.23 tons/acre/year. Predictions were made on sediment and salt yield values if continued ORV and mining claim activity disturbed surface cover. It was estimated that surface disturbance of 20 percent would result in increased salt yields of 0.12 tons/acre/year. This equates to a dollar value of $52,826 increased treatment costs to users of the Colorado River water. Cost estimates are based on increased salt yields, number of acres disturbed, and the value placed on a ton of salt by the Bureau of Reclamation which is $58/ton.

Wildlife resources receive social and economic considerations from consumptive, nonconsumptive, resident and nonresident perspectives. Although many Americans enjoy wildlife resources, Utah hosts a state holiday the opening of the annual deer hunt. This is a time when the schools close and many people take vacation time to enjoy hunting with friends and relatives.

Each year approximately a quarter million deer hunters (resident and nonresident) go afield in Utah. The DRA hosts approximately 10,000 deer hunter visits as well as 6,000 upland game visits and about 13,000 fishing visits.

The U.S. Fish and Wildlife Service estimates that a fisherman in Utah spends an average of $12 per day during a fishing trip (USDI, 1982). Utah Division of Wildlife Resources (1978) estimates that the average deer hunter in Utah spends $247 during the season. These expenditures include food, drinks, lodging, transportation, auxillary equipment, but not license fees.

The consumptive use of wildlife is oriented toward manipulating game populations through habitat manipulations in order to provide the opportunities desired by the public. The public needs are identified by Utah State Division of Wildlife Resources through public meetings, advisory groups and legislative review commissions. The BLM strives to balance wildlife resource capabilities with public demand. Nonconsumptive social and economic benefits from wildlife are not very well documented. It is well known that wildlife enjoyment (or the possibility thereof) is often the primary reason for a recreational activity such as photography, fishing, birdwatching, hiking, horseback riding and camping. These activities are plentiful throughout the Resource Area and nonconsumptive enjoyment of wildlife could account for about half of the nearly 400,000 recreational visits to the DRA. The social importance of nongame wildlife is also reflected by the state tax donations incorporated on the tax forms.

A national survey on wildlife-associated recreation estimated that 47 percent of the American population took special interest in wildlife around their homes, for the primary purpose of nonconsumptive wildlife appreciation. It can be a safe assumption that in communities surrounded by public lands, the maintenance of healthy wildlife habitat has high social significance.

Of particular concern in the DRA, are the sensitive T&E animals and fish. These species have been recognized by law and regulations to have high social values by nature of restricted habitat and/or numbers. As such, they receive special consideration during resource management decisions and funding. Between 1977-1987, approximately 100,000 dollars of federal and state funds have been invested on research and administrative costs benefiting the desert tortoise in the Resource Area.

The social importance of cultural resources is self-evidently reflected in laws enacted by Congress to protect these resources and the coast-to-coast establishment and popularity of certain sites.

The Shivwits Paiute Band in Washington County have strong cultural bonds, particularly with petroglyph and burial sites and become distressed when these sites are disturbed without their consultation. The DRA lands are rife with these and other cultural properties the BLM is required by law to protect or mitigate. But there are no cultural sites of notoriety which attract significant amounts of tourist dollars.

Although there are no significant economic returns generated by cultural resources, the economic costs incurred by the Bureau (or other parties) to protect (or mitigate) cultural values is often of sporadic economic significance. Several "mitigating actions" have cost approximately $50,000 and many have ranged between $2,000 to $20,000. These can be significant expenses to the sponsors of the activity requiring the mitigation and should receive consideration during project planning.

Viewing scenery is ranked as the number one pursuit of all visitors to public lands. The indirect economic value of visual resources, as it relates to scenic physical settings providing recreation experiences, is difficult to quantify and yet provides perhaps the greatest social value to residents and visitors to DRA. People tend to select recreation experiences in visual settings which are more aesthetically pleasing. In a recent study completed by Dan Jones and Associates (November 1986), "impressed with Utah's scenery" or "beautiful scenery" ranked as the number one reason for visiting southern Utah. On a scale from one to five, 75 percent of the respondents assigned Utah's scenic attractions the highest score of five. Therefore, it is reasonable to assume that scenery is a primary reason for the popularity of this region to the visitor and quality of life to its residents.

The value of the public lands scenery with respect to the speculative "view lots" is also unquantifiable, but an indication of its monetary value was indicated by a poll of local real estate agents. The agents were asked "what is the value of a building lot which contains a view of public lands as opposed to lots without a view or a "blocked view". The agents indicated that the scenic value of public lands would be worth on the average of $7,000 to $10,000 per lot in the Santa Clara, Bloomington Hills, and Ivins areas, and $10,000 to $125,000 per lot in the Springdale-Rockville area more than a lot without a view or a "blocked view" (Boos 1987). This data supplies only an indication of the value of public lands scenery to the quality of life in Washington County.

Records indicate there were nearly 400,000 recreational visits for the DRA during the 1984-85 use seasons. It is estimated that in 1990 use will be considerably higher (about 1,000,000) taking into consideration population growth and visitation to Washington County.

Tourism expenditures in various economic sectors in Washington County are fairly similar to those statewide, and account for the following: 24 percent for food, 27 percent for lodging, 33 percent for transportation, 11 percent for retail sales and services and 5 percent for entertainment.

The following Table 2-9 indicates the economic value of recreation on Utah public lands for 1987. It has been estimated by Five County Association of Governments that the Five County region accounts for approximately 25-28 percent of this use. The DRA supplies perhaps five-ten percent of this recreational opportunity and, as such, contributes a proportional amount into the county economy.

Table 2-9

Estimated Economic Value of Recreation on Utah Public Lands - 1987

Activity	Recreation Visitor Days	Value per Day	Total Value
Camping and Picnicking	285,000	$14.20	$4.0 million
Motorized Travel (Sightseeing)	195,000	6.70	3.9 million
Hiking and Horseback Riding	195,000	20.76	4.0 million
Fishing	50,000	23.35	1.1 million
Other Water-Related Activities (River Trips)	200,000	20.27	4.1 million
Hunting	100,000	35.18	3.5 million
Winter Sports	8,000	13.98	0.1 million
			$20.7 million

Source: Richard G. Walsh, and John Loomis, Dec 1986, The Contribution of Recreation of National Economic Development. Socioeconomics

Special Management

Areas of public land with sensitive resource values needing special treatment have been identified through current management analysis. These include areas where current uses or reasonable foreseeable uses could lead to degeneration of the resource quality.

Special management needs have been identified for: highly erodable soils; riparian areas not meeting objectives of current management or where vulnerable to major surface disturbances; recreational areas where present or future use could degrade the recreational values; habitat of animal and plant species with threatened, endangered or sensitive status; critical big game winter range and migration routes; cultural resources needing protection from vandalism or with high interpretation potential; scenery with high public value; and public water supplies.

The following list identifies areas in the DRA requiring some level of special management (reference Appendix: Planning Team Nominations for ACEC Consideration, February 16, 1988):

LOCATION	RESOURCE VALUES
Santa Clara River/Virgin River	Riparian habitat, floodplains, T&E species, recreation, water quality, archaeological values
Little Creek Mountain, Cedar Pockets/Bulldog Pass	Archaeological values
City Creek, Beaver Dam Slope	Desert Tortoise habitat, gila monster habitat
Red Cliffs	Peregrine falcon nesting
Pintura	Critical deer winter range, migration
Red Bluff, Webb Hill, Warner Ridge, Shinab Kibe, White Hills	Two T&E plants, highly erodible saline soils, gila monster habitat
Ft. Pearce Springs	Riparian zone, spotted bat habitat
Canaan Mountain, Red Mountain, Black Ridge/LaVerkin Creek, Virgin to Springdale Corridor	Scenic values, recreational use
Red Cliffs/Sand Mountain/Warner Valley	Recreation use
Deep Creek/N. Zion Area	Recreation use, water quality, wild and scenic river
Upper Beaver Dam Wash	Watershed, aquifer, riparian zone
Navajo Sandstone Formation, Hildale Springs	Important aquifer/community water supply

CHAPTER 3

ALTERNATIVES

Introduction

Three alternative plans are being considered in this draft RMP/EIS to provide for the management of the public lands in the DRA. Specific resource management decisions for each alternative are presented. These alternatives do not follow a distinct production vs. protection approach. They are variations of an existing MFP which have been working well for most resource management programs. However, nearly all programs need some adjustments in order to respond to changes in management direction, i.e., bureau policy directives, county growth, increasing tourism and recreation as described in the issues. Where and how these adjustments affect current management constitute three different alternative themes toward resolution of the issues and management concerns. Each alternative is a comprehensive plan. Yet not all resource management programs need significantly change among the alternatives. Alternative C is the preferred alternative. The following objectives have been selected for the alternatives:

Alternative A (No Action)

Alternative A is a continuation with the current management described in the Virgin River MFP (1981). Any non-conforming actions will continue to be dealt with through plan amendments. The MFP decisions will be analyzed for NEPA compliance.

Objectives:

1. Continue the valid existing management decisions from the MFP.

2. Update all resource programs where it is necessary to bring them up to compliance with current policy, regulations and program guidance.

3. Adjust the VRM classes and recreational management opportunities to reflect the current situation.

4. Non-conforming actions should be handled through plan amendments.

5. All decisions should be assessed for NEPA compliance.

Alternative B

Alternative B emphasizes land tenure adjustment. The thrust of this plan is to maximize opportunities for exchanging tracts of public land identified by BLM for exchange "pooling" or identified as desired by local and state planning interests and which are not mandated by regulations for retention. Identified for acquisition are private and state lands which would be resource enhancing for public purposes.

Objectives:

1. Priority should be given to accommodating identified community and state land acquisition requests.

2. Most disposal lands identified in the MFP should be carried forward from the MFP.

3. Include the recently (1986-88) inventoried FLPMA 203 lands (sales) for maximum land tenure adjustment capability.

4. Include R&PP requests on file with the DRA.

5. Land exchange "pool" should give priority to processing state and local exchange requests.

6. State and county planning needs should receive more consideration than environmental factors in making land tenure adjustments.

7. Appropriate resource management decisions should be carried through from the MFP.

8. Forestry should determine a set volume of fuelwood permits and posts based on sustained yield information.

9. Any ACECs should be recommended for designation. Canaan Mountain and Desert Woodbury ACEC recommendations should include the Nature Conservancy nomination (Desert Woodbury enlarged by approximately 500 acres).

10. Riparian management measures should be developed to a standard meeting Bureau policy requirements.

11. Identified disposal lands with T&E species could be traded for land to benefit the same species only after a "no jeopardy" determination from Fish and Wildlife Service.

12. Special Recreation Management Areas (SRMA) should be recommended in order to give recreation management direction and provide for long term recreational opportunities.

13. BLM should not attempt to maintain urban fringe lands heavily utilized as ATV recreation areas. These abused problem areas should be disposed of by exchange or sales.

14. Any ORV zoning should allow access for fluid minerals exploration and development in moderate and high favorability areas.

15. Saleable mineral opportunities should remain the least restrictive in order to accommodate demand.

16. Two interstate utility corridors should be designated to accommodate the identified (Western Utility Corridor Study, 1986) needs of the utility industry.

17. Demand rights-of-way should be accommodated with the least environmental restrictions.

18. The BLM should accommodate reasonable city annexations of public lands.

19. The BLM should not maintain an interest in developed shoreline recreation on new reservoirs in order to allow reasonable municipal economic uses.

20. The Navajo acquifer should be protected but disposal could occur with protective stipulations.

Alternative C (Preferred)

Alternative C emphasizes resource retention. The thrust of this plan is to optimize opportunities for the long term retention, protection, and special management of any public lands identified as having critical resource values or uses including (but not limited to) cultural resources, riparian values, T&E and sensitive species habitat, scenic values, and recreational values.

Objectives:

1. The priority in land tenure adjustment should be given toward acquisition of identified lands to benefit resource programs.

2. Competitive sales should occur on "203" (sales) parcels only after three to five years of exchange availability.

3. All parcels with significant or critical national resource values should remain under federal control. These values include:
    a. archaeological
    b. critical soils
    c. riparian
    d. floodplains
    e. sensitive T&E plants and animals
    f. Navajo aquifer
    g. crucial habitat for migrating birds, quail, raptors
    h. "A" quality scenery

4. Opportunities to maximize management of T&E species, riparian habitat, and wildlife habitat should be developed.

5. The ATV "open" areas should be limited to locations with the least environmental conflicts.

6. All municipal watersheds should remain in public ownership.

7. Management commitments should be made to protect sensitive species habitat.

8. Two interstate utility corridors should be designated.

9. Recommended ACECs and the Black Ridge area should be right-of-way avoidance areas.

10. Recommended ACECs on Canaan Mountain (scenic) and on Beaver Dam Slope (Desert Tortoise habitat) should include all the important acreage necessary to effectively manage the resource.

11. The VRM III inventory class should be managed to the same standards as the VRM II areas.

12. Highly sensitive scenery and "A" and "B" quality scenery should be managed as a resource with economic value to the county.

13. Program support easements should be identified:

    a. riparian consolidation
    b. aquifers
    c. T&E and sensitive species
    d. cultural and historical
    e. other identified program needs

14. Red Cliffs and Baker Dam Recreation Areas should remain in public ownership with adequate funding to manage Red Cliffs as a BLM "show place".

15. The SRMAs should be prioritized for development of management plans according to use and condition of recreational values:

    a. Red Cliffs/Sand Mountain (use)
    b. Deep Creek (condition)
    c. Red Mountain/Santa Clara Creek (use)
    d. LaVerkin Creek (condition)
    e. Canaan Mountain (condition)

16. Negotiate with local government on city annexation of public lands not shown as eligible for disposal.

MANAGEMENT COMMON TO ALL ALTERNATIVES

The following management applies to DRA lands and resources regardless of which alternative is chosen and these should be considered as part of each alternative. These actions have been previously implemented or were identified in the Management Situation Analysis (MSA) as an administrative action needing implementation.

All alternatives are subject to all applicable laws, Executive Orders, departmental regulations, and BLM policy. These are not repeated in this document.

Environmental impacts of land use actions not specifically covered in this RMP will be analyzed in site-specific NEPA documents on a case-by-case basis as projects are proposed.

Management common to all alternatives is given by resource management program.

Fluid Minerals

Oil, gas and geothermal leases issued prior to the RMP will continue to be managed under the stipulations in effect when issued. Those issued subsequent to the RMP will be subject to category restrictions developed in the plan.

Split-estate leasing stipulations will be the same as those with BLM surface management surrounding the split-estate. BLM administers the operational aspects of these leases with concurrence of the surface owner.

Exceptions to the fluid mineral categories resulting from this plan may be granted to fluid mineral leaseholders or their assignees upon approval of the District Manager if these criteria are met:

1) The resource or use does not exist upon the area covered by a category or stipulation written to protect that resource or use.

2) The leaseholder or operator can demonstrate that the exception is necessary because another location outside the category or stipulation area is too expensive to use or technically unfeasible and mitigation can be designed to protect resources as well as the assigned category or stipulation.

Mineral Materials

Mineral materials disposal is by sale at fair market value or by free use permit for public agencies. Three community pits have previously been established to meet demand for sand and gravel. These are considered sufficient to meet demand for the life of this RMP. Other areas may be opened to mineral sales in response to specific requests. The RMP will be used to delineate areas where, due to other resource values, there may be severe restrictions imposed on any requests for mineral disposals.

Free use of petrified wood is allowed for non-commercial purposes up to 250 pounds per person per year. The entire DRA is open for petrified wood free use compatible with ORV restrictions.

Mining Law Administration

Locatable minerals are administered under the mining laws, which preserve the right of individuals and corporations to enter on the public lands to claim (locate) certain types of mineral discoveries. All public lands overlying federal minerals are open to mining claim location unless specifically withdrawn from mineral entry by Secretarial Order or public law or segregated from mineral entry under specific reservations, such as a R&PP lease. Lands and minerals that were acquired by the federal government but were not part of the original public domain are not open to mineral entry under the mining laws.

The RMP may be used to identify lands to be segregated from mineral entry. Claims located on these areas prior to adoption of the RMP will not be affected. The RMP cannot impose conditions on annual assessment work done under a Notice of Intent, but will be used to develop special conditions to apply to mining operations or annual assessment work approved under a plan of operations, regardless of whether the claim was located before or after adoption of the RMP.

BLM administers claim recordation requirements (at USO) and operational aspects of mining federally owned minerals (at DRA), whether or not the surface is administered by the BLM. Outside of USFS administered land, location and operation of mining claims on other federal lands or split-estate lands is restricted under various land ownership laws. The surface owner or administering federal agency manages the surface. RMP requirements do not apply to these lands.

Federally owned locatable minerals underlying federal lands administered by the NPS within DRA boundaries are not available for claim location. Most NPS administered land has been withdrawn from mineral entry.

Rights-of-Way

Lands available for rights-of-way, including the major transportation and utility systems, will be divided into four major categories: (1) lands in designated transportation and utility corridors where standard operating procedures apply; (2) lands outside of designated corridors where additional conditions may apply upon completion of proper NEPA documentations; (3) areas that will be avoided; and (4) areas that will be excluded.

The RMP will identify lands to be excluded, avoided, or available for additional rights-of-way. Use of existing rights-of-way will continue to be subject to the conditions made a part of the grant upon issuance; renewals of these grants may be subject to the conditions developed in the RMP.

Rights-of-way for access to private and state inholdings, inheld oil and gas leases, and pipelines for producing oil and gas wells are processed and issued upon application; by law these cannot be denied. Rights-of-way for county and state roads similarly will not be denied. The BLM is required to recognize and maintain the county's Revised Statute (R.S.) 2477 road system, to provide right-of-way reservations to the BLM or other federal agencies upon request, and to provide rights-of-way for water projects upon proper application. A land report documents the action on each application, and is prepared at the same time as site-specific NEPA documentation.

Lands

The RMP will identify specific tracts of land available for community expansion, public purposes, or private use; these lands will be considered available for sale or other disposal. Parcel specific analysis to determine if FLPMA 203 sale criteria is being met will be evaluated during the EA process prior to disposition of the tract. Land exchanges could be considered on a case-by-case basis on lands not identified in the RMP for disposal or acquisition if the exchange accomplishes one or more of the following criteria:

(1) Results in a net gain of significant resource values on public land such as important wildlife habitat, cultural sites, riparian zones, live water, and T&E.

(2) Improves the accessibility of the public lands.

(3) Contributes toward more efficient management of public lands through consolidation of ownership.

(4) Lands otherwise determined to be in the best public interest or which serves a national priority as identified by State or Washington Office Directives.

For other situations, application or proposal for a land sale, exchange, state indemnity selection, or other disposal action, a plan amendment will be prepared. Generally, disposals of qualifying land will be allowed if: (1) the sale meets one of the three criteria in Sec. 203 of the FLPMA; (2) disposal meets requirements of other appropriate law, such as the R&PP Act; and (3) disposal is not precluded by law. A land report documents the action on each application and is prepared concurrently with site-specific NEPA documentation.

Existing R&PP leases generally carry the right to patent. Upon proper application the existing R&PP leases which have previously been determined suitable for R&PP lease or patent could be patented.

Permits or leases for special uses of the public lands will be considered upon application. The RMP could impose conditions of use within specific areas. Special uses, including community expansion, will generally be accommodated on qualifying lands upon proper application.

Unauthorized use of the public lands will be resolved either through termination of the activity or by lease of the lands to the trespasser, consistent with RMP management objectives. Priority will be given to resolving unauthorized uses where malicious or criminal intent is involved, sensitive resources of national significance are threatened, or rights of authorized users are detrimentally affected.

Withdrawal Processing and Review

FLPMA requires the BLM to review agency withdrawals and C&MU classifications. This is done in response to schedules prepared by the Utah State Office, or upon special BLM or agency request. DRA will review other agency withdrawals. After review, withdrawals found to be obsolete will be removed. New withdrawals will be processed upon requests from the BLM or other federal agencies, but can be made only by the Secretary or by Congress.

Existing land leases, which have been classified under the R&PP or the Small Tract Acts, will not be affected by this RMP.

Forest Management

The DRA manages woodland products by controlling harvests and sales. The DRA will sell woodland products in designated areas for fuelwood, posts, Christmas trees, ornamental or medicinal purposes, and other uses as requested.

Fuelwood harvest will be limited to pinyon and juniper in quantities allowing for sustained yield. Onsite use of wood products by recreationists (for example, campfires) will be allowed unless specifically excluded in certain areas under the RMP.

Grazing Management

The RMP will allow continuation of the current grazing authorizations. Future adjustments will be made as a result of monitoring, policy, and regulations. Grazing systems will be maintained, revised, or implemented. Seasons of use may be changed to resolve surface management conflicts identified in the RMP or in response to monitoring. Grazing system implementation will be based on consideration of (1) objectives detailed in an AMP; (2) resource characteristics detailed in the RMP; (3) vegetation characteristics determined by monitoring; (4) availability of water; (5) operator requests, and (6) implementation costs.

Cultural Resource Management

Natural history, palentology, archaeology, and history resources are all administered under this program. By law, the BLM is charged with protecting these resources from adverse impacts resulting from development, grazing, and recreation activities and from vandalism.

The BLM will conduct an ongoing inventory for natural history, paleontological, and cultural resources as funding and personnel become available. Identified resources will be protected as required by law, regulation, and policy; activity plans for management of specific sites will be prepared as needed.

Wilderness Management

The WSAs and ISAs will be managed under the wilderness IMP until Congress either designates them as wilderness or drops them from the wilderness review process. Actions allowed under IMP will also be subject to any further restrictions developed in the RMP. Designated wilderness will be managed under the regulations at 43 CFR 8560. A wilderness management plan will provide site-specific management guidance for each designated wilderness area.

Areas studied and not designated as wilderness will be released from wilderness review by Congress. When released, these areas will be managed under the guidance for management of other resource programs given in the RMP.

Recreation Resources Management

Specific areas are managed as SRMAs in recognition of intensive recreational use or special recreational values. The remainder of the DRA is managed as the Dixie ERMA. Some SRMAs will be designated through the RMP. Additional SRMAs may be designated in response to future use demands. Dispersed recreation use will be allowed throughout the DRA, with permits required for commercial and competitive use. Existing developed recreation sites will be maintained at Red Cliffs and Baker Dam Recreation Areas.

Off-road vehicle (ORV) use designations will be made. The designations will be those developed in the RMP. The ORV designations do not distinguish between recreational and nonrecreational use; ORV use in an area designated closed or where limited may be allowed under an authorized permit. The ORV designations do not apply to federal, state, or county roads, or to private or state inholdings.

Recreation Opportunity Spectrum (ROS) classes (Glossary) have been identified based on inventory work in the DRA. These classes reflect current conditions based on five setting factors. These factors are reviewed periodically; a change in conditions could result in a change in the ROS class. (However, the changing of a planning decision based upon the inventory would require official revision of this plan.)

Visual Resource Management (VRM) class areas have been identified based on inventory work in the DRA. Classes are based on visual resource conditions, such as scenic quality, distance zones, and sensitivity levels (Glossary). These are reviewed periodically; a change in conditions could result in a change in the VRM class. (However, the changing of a planning decision based upon the inventory would require official revision of this plan.)

The VRM classes give management objectives to be applied to surface disturbing proposals taking place on the public lands. Land use proposals are reviewed individually to determine whether visual impacts can be adequately mitigated to meet the objective of the existing VRM class.

In all alternatives, the DRA portions of the Deep Creek and North Fork of the Virgin River are "eligible" rivers with suitability recommendations deferred to the joint study effort. Under current management, these eligible rivers would not be "classified" as wild, scenic, or recreational. Lacking classification, interim protection would not be provided on these rivers.

Soil, Water, and Air Management

The BLM will manage actions on the public lands to protect the soil resource. Additionally, the BLM will manage the soil resource to maintain or increase soil productivity as needed.

The BLM will maintain the soil data base by updating range site descriptions from information collected through range monitoring and other specific studies. Information is shared with the Soil Conservation Service (SCS).

Existing watershed control structures will be maintained. Additional structures may be constructed if needed, subject to any conditions developed in the RMP.

The BLM will maintain the data base on water quantity. The BLM will maintain water rights files and data entry on the statewide computer system. U. S. Geological Survey (USGS) stream gauging stations will be accommodated. The BLM will take appropriate actions to maintain the water quality of streams within DRA to meet state and federal criteria. The public lands will be managed so as to abide by laws, Executive Orders, and regulations on floodplain and wetland areas to reduce resource loss from floods and erosion.

The BLM will manage actions on the public lands to meet air quality standards prescribed by federal, state, and local laws. The BLM will protect existing air quality when feasible.

Wildlife Habitat Management

Wildlife habitats will be managed to provide forage, cover, water, and space requirements to support major wildlife species. Habitat management plans (HMPs) will be implemented to provide for site-specific wildlife habitat management. Existing wildlife water developments will be maintained. Big game species habitat will be managed in cooperation with the Utah Division of Wildlife Resources (UDWR). Interagency big game studies will monitor habitat conditions.

Endangered Species Management

No management action will be permitted on public lands that would jeopardize the continued existence of plant or animal species listed as threatened or endangered, or officially proposed for listing. The BLM will consult with the U. S. Fish and Wildlife Service for a formal or informal consultation under Section 7 of the Endangered Species Act before approving or implementing any action that may affect a protected species. The DRA will continue to cooperate in surveys to determine the extent or existence of threatened, endangered, or sensitive species.

Fire Management

Fires will be suppressed in accordance with a Cedar City District Fire Management Plan prepared to implement RMP decisions. The Fire Management Plan will detail prescriptions for or limitations on fire suppression, including areas where fires will be completely suppressed or allowed to burn, equipment and techniques allowed in specified areas, and values at risk to be protected. Nothing in any of the alternatives will affect the fire program. No further analysis will be conducted.

Hazardous Waste Management

The BLM will inventory the DRA to identify sites with potential hazardous waste and develop management plans for these sites. At this time (1988) BLM policy for this program is still being formulated. Nothing in any of the alternatives will affect this program because all proposals will be handled in separate analysis. No further analysis will be conducted.

Transportation

After selection of a RMP, an activity level transportation plan will be developed to improve the road system throughout the Resource Area. The emphasis of this plan will be to improve maintenance on necessary roads and reclaim unnecessary roads.

Socioeconomics

Socioeconomic considerations are part of every BLM management program, but are not a separate management program. The social and economic impacts of implementation of any management action are required to be assessed either through the RMP/EIS or in the site-specific NEPA documents prepared at the activity level.

BLM budget restrictions are also a management consideration. Lack of funding can prevent full implementation of approved projects or designations. Priorities in funding can shift over time, resulting in changes in implementation or monitoring schedules.

Riparian Area Management

Management actions in floodplains and wetlands will preserve, protect, and, if necessary, restore natural functions in accordance with laws, Executive Orders, and regulations. Actions will be taken to minimize degradation of streambanks, loss of riparian vegetation, and degradation of aquatic habitats. Activities in riparian zones, including mitigation of surface disturbance, will be designed to maintain riparian and aquatic habitat conditions. Bridges and culverts will allow adequate fish passage where applicable.

Table 3-1 presents a summary of the three alternatives under consideration in this RMP. These alternatives and their environmental impacts are discussed on subsequent pages.

Table 3-1
SUMMARY OF ALTERNATIVES

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Special Management Wilderness	3,775 2,635 (BLM)	Same as Alternative A	3,775 2,635	Wilderness Management Plan (pg. 37) considered long-term high positive impact	3,775 2,635	Same As Alternative A.
ACEC (T&E, Riparian, Scenic, Cultural, Soils	100,080	High long-term benefits through special management prescriptions and designation.	0	Long-term high negative impacts resulting from lack of management objectives for areas needing special management (pg. 72)	45,865	Moderate long-term benefits through special management prescriptions and designation (pg. 142)
Eligible Segment Wild and Scenic River (mi.)	5.5	Same as Alternative B	5.5	Potential long-term negative impact from lack of direction (pg. 167)	5.5	Moderate long-term benefit from "wild" classification (pg. 179)
S.R.M.A.	153,950	Same as Alternative B	0	Long term high negative consequences from lack of management direction. (pg. 166)	153,950	Long-term high positive consequences from special management and activity level planning (pg. 178).
Minerals (fluid)		Moderate negative consequences (pg. 188)		Short-term low negative impacts (pg 160) based on low development potential, history and reasonable development scenerio (pg. 25)		Moderate negative consequences for exploration and development due to 12% of the medium and high potential areas becoming Category 2 or 3. Low environmental impacts based on reasonable foreseeable disturbances (pg. 173).
Cat. 1 - Open (ac.)	403,555		514,510		419,065	
Cat. 2 - Open Special Stips. (ac.)	52,610		26,700		82,920	
Cat. 3 - Open No Surf. Occup. (ac.)	168,875		40,585		123,055	
Cat. 4 - Closed (ac.)	2,635		45,880		2,635	

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Mineral (locatable)		High long-term negative due to 10.3% of high potential zone withdrawn for ACEC (pg. 189).		Negligible impacts (pg. 161) based on mitigating measures specific for each operation. All resource area open except for Beaver Dam Wilderness and few R&PP segregations.		Long-term moderate negative for exploration and development due to withdrawal of 3,040 acres (ACEC) high potential area on Beaver Dam Slope (pg. 173)
Open (ac.)	477,780		625,040		503,140	
Closed (ac.)						
Wilderness	2,635		2,635		2,635	
Beaver Dam Slope ACEC	26,960		-		3,230	
Restricted (required 3809 regulations, ac.)	120,300	Same as Alternative B.	35,220		118,670	Low negative impacts due to Plan of Operation requirement (pg. 173).
ACEC						
ORV Closed						
Potential Wild & Scenic River						
Mineral (Materials)		Negligible impacts (pg. 189)		Negligible environmental impacts. Moderate social benefits (pg. 160)		Same as Alternative A with addition of areas to avoid (pg. 173).
Open (ac.)	348,950		625,040		410,825	
Closed (ac.)						
ORV Closed	82,100		2,635		82,100	
Withdrawal	26,960				3,230	
Restricted (ac.)	169,665		-		131,520	
NSO Areas						
Warner Ridge ACEC						
Red Bluff ACEC						
Peregrine Falcon Habitat						
Rights-of-Way Corridors (mi.)	37	Long-term high positive from corridors designation (pg. 189)	0	Long-term high negative impacts for scenic quality and economics of processing (pg. 162)	37	High positive impact to sensitive resources, and industrial planning and costs (pg. 173).

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Avoidance (ac.) VRM I, II, T&E Habitat, ORV Closed, Riparian ACECs	269,265	Same as Alternative B.	0	None identified	267,775	Long-term high positive environmental consequences due to 75% of resource area in avoidance area (pg. 174).
Exclusion (ac.) Beaver Dam Wilderness	2,635		2,635		2,635	
Lands		Long-term moderate negative impacts. Disposals do not accommodate development needs of several communities (pg. 190)		Long-term low to moderate negative due to irretrievable commitment of resources particularly wildlife (pg. 163)		High long-term social benefits for development (pg. 175). High long-term negative consequences from loss of Federal management of some tracts with critical resource values (pg. 176)
Disposal (ac.)						
Potential Sales	1,465		1,670		2,670	
Other Disposals	8,440		10,760		29,870	
Aquisition (ac.)	39,565	Same as Alternative B.	0	None identified. Acquisitions in response to exchange proposals.	39,565	Long-term high positive consequences from improved manageability and addition of acres with critical resource values (pg. 176).
Nondisposal (ac.)	617,770	Same as Alternative A.	615,245	Long-term positive management under FLPMA.	595,935	Same as Alternative A.
Withdrawal and Classification (ac.)	36,575 (+26,960)	Same as Alternative A.	9,615	Long-term low positive impacts (pg. 164)	12,845	Same as Alternative A.
Forest Products Fuelwood (ac.)	40,175	Same as Alternative B.	40,175	Long-term moderate negative consequences from exceeding sustained yield (pg. 164)	40,175	Long-term low positive consequences through annual sustained yield management based on 150 yr. stand development. 1,200 cords fuelwood/yr. 2,000 posts/yr. 500 Christmas trees/yr. (pg. 176)
Desert Veg. (ac.)	4,290	Same as Alternative A.	640	Negligible impacts (pg. 164)	4,290	Same as Alternative A.

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Grazing Excluded (ac.)	47,275	Same as Alternative B.	47,275	Long-term low positive impacts due to overall improving range condition (pg. 165)	47,275	Moderate positive long-term consequences for vegetation (pg. 177).
Allotted (ac.)	580,400		580,400		580,400	
Cultural ACEC (ac.)		High long-term positive from complete ACEC protection (pg. 191).		Long-term moderate beneficial impacts (pg. 165)		High overall beneficial consequences from ACEC designation (pg. 177). High negative impacts to insitu protection from disposals of parcels No. 7, 25 (pg. 177).
Little Creek	18,455				18,455	
Land Hill	1,770				1,550	
Gunlock	1,790				1,790	
Virgin River	1,460				965	
Recreation SRMA (ac.)	153,950	Same as Alternative B.	0	Long-term high negative consequences due to lack of special management for identified areas (pg. 166).	153,950	High long-term benefits through management direction for special areas (pg. 178).
ERMA (ac.)	473,725	Same as Alternative A.	576,465	Negligible impacts.	473,725	Same as Alternative A.
ORV Open (ac.)	148,580	High long-term positive consequences from limiting ORV open riding to areas with no conflicts.	457,235	Long-term moderate negative consequences to riparian areas, critical soils, vegetation from open ORV designations (var. pgs.)	473,120	Same as Alternative A.
Closed (ac.)	82,100	Same as Alternative B.	35,220	Moderate positive consequences for protection of important resources.	82,100	High positive consequences from increased acreage protected.
Limited (ac.)	296,995	High positive consequences.	45,220	Low positive consequences.	72,455	Moderate positive consequences.
VRM Scenic ACEC Class I	37,350	High long-term positive consequences from increased acreage in VRM I and II (pg. 191).	0	Moderate positive consequences (pg. 165).	8,840	High positive irreversible impacts from ACEC management (pg. 178).
Red Mountain	5,480				5,480	
Canaan Mountain	31,870				3,360	

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Class I	2,635		2,635	Designated Wilderness.	2,635	
Class II	427,865	High positive long-term (pg. 191)	131,930	High positive long-term consequences (pg. 166)	123,090	High positive long-term term (pg. 178).
Class III	0	Becomes VRM II by decision (pg. 191).	333,285	Moderate long-term positive consequences (pg. 166)	333,285	Same as Alternative A.
Class IV	159,570	Same as Alternative A.	159,570	No impacts because major changes allowable.	159,570	Same as Alternative A.
Soil, Water,						
Gypsum Critical Soils (ac)	69,770	High positive benefits. Increased acreage receiving special management under ACEC designation (pg. 192).	69,770	Long-term moderate negative consequences through lack of special management and open ORV on 78% of resource (pg. 167)	69,770	High cumulative beneficial consequences from: ACEC designation and subsequent management, i.e., increased acreage protected from ORVs; instream flow agreements; water protection zones (pg. 180).
(ACEC ac.)		High positive impact (pg. 192)				
Red Bluff	6,010		0		4,750	Moderate positive impact (pg. 180).
Warner Ridge	3,690				3,690	
Navajo Acquifer (ac.)	42,380	Same as Alternative B.	0	Potential for high negative impacts from lack of special management (pg. 168)	42,380	High positive impact from protective stipulations (pg. 181).
Riparian (ac.)	4,855	Same as Alternative B.	4,230	Long-term moderate negative impacts from lack of management strategy (pg. 168)	4,855	High positive impact from protection of WPZ and management of ACECs (pg. 181).
ACEC (ac.)		High positive impacts from adequate ACEC designations (pg. 192).		Long-term high negative impacts resulting from lack of management objectives for areas needing special management (pg. 72)		High negative consequences from disposal parcel Nos. 7 and 25 due to loss of riparian acreage (pg. 182).
Virgin River	1,460		0		965	
Land Hill	1,770				1,550	
Gunlock	1,790				1,790	

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
Water Protection Zone (ac)	30,360	Same as Alternative B.	0	Moderate negative impacts from lack of management direction (pg. 167).	30,360	High positive impacts from recognition and fluid mineral stipulations (pg. 181).
Instream Flow Needs (mi.)	96.6 mi. (3,245 ac)	Same as Alternative B.	48.2 mi. (2,620 ac)	Long-term high negative impact due to potential interruption of instream flow (pg. 167).	96.6 mi. (3,245 ac)	High positive impact from maintaining flows (pg. 180).
Wildlife Habitat		Impacts to General Wildlife habitat same as Alternative B.		Long-term high positive impacts from current HMPs on 70% of resource area (pg. 168).		Long-term high positive consequences (pg. 183). High positive consequences for small game (pg. 183).
Big Game Priority	136,365		136,365		136,365	
Critical (ac.)		Same as Alternative B.		Potential low negative consequences from current fluid mineral category (pg. 169).		
Big Game	17,740		17,740		17,740	High positive consequences from seasonal exploration, nondisposal, acquisition (pg. 183).
Desert Tortoise	56,030		23,120 (FWS Critical only)		56,030	
Sensitive (ac.)		Same as Alternative B.		Potential for moderate negative impacts from mineral exploration and development and land disposals (pg. 169).		High positive consequences from ACEC and fluid mineral categories (pg. 184).
Desert Tortoise	42,465		42,465		42,465	
Virgin River Chub	780		780		780	
Spinedace	1,280		1,280		1,280	
Spotted Bat	195		195		195	
(ACEC)		Same as Alternative B.		Potential for high negative impacts from mineral exploration and land disposals (pg. 169)		High positive consequences from ACEC and fluid mineral categories (pg. 184).
City Creek	2,595		0		2,595	
Gunlock	1,790				1,790	
Land Hill	1,770				1,550	
Threatened and Endangered Species		High positive consequences through adequate ACEC designation, management, NSO category and possible (all) mineral withdrawal (pg. 172).		Potential high negative impacts to desert tortoise and T&E plants. Mineral exploration and development (pg. 170) Moderate beneficial consequences from current ORV designations (pg. 170).		Overall moderate positive impacts from acquisition, instream flow agreements, ACECs, withdrawal (pg. 185).
Plants	4,935		4,935		4,935	
Desert Tortoise	56,030		56,030		56,030	
Woundfin	780		780		780	
Peregrine Falcon	10,470		10.470		10,470	

Table 3-1
SUMMARY OF ALTERNATIVES (Cont.)

Management Determinations	Alternative C Preferred (acres)	Narrative	Alternative A No Action (acres)	Narrative	Alternative B (acres)	Narrative
ACEC (ac.)		High positive consequences (pg. 192).	0			Moderate positive consequences. Disposal parcels Nos. 7, 21 and 25 constitute high irreversible negative impact (pg. 185).
Virgin River	1,460				705	
Red Bluff	6,010				4,750	
Beaver Dam Slope	26,960				3,230	
Warner Ridge	3,690				3,670	

ALTERNATIVE A

A map for each alternative is included in the map pocket in the back of the document. These maps represent priority areas and are described in the map legend with the highest management priority first. Each priority area represents a set of resource actions which have been determined to be compatible. Aggregation of compatible resources and their prioritization is used as a strategy to reduce conflicts in writing multiple-use prescriptions.

Alternative A (see Alternative A map) represents current management decisions displayed by multiple use compatibility. It does not display resource values. Many uses other than on the legend occur throughout the resource area. However, these uses may have more restrictive limitations. For example, livestock grazing occurs throughout the public lands, but it only shows on the map when there are no other management decisions with a more restrictive level of management. Oil and Gas Category 4 (closure) does not conflict with grazing or non-motorized recreation, but it precludes recreational ORV use because that activity is also incompatible with the environmental values which initiated the fluid mineral closure. Wilderness management on the wilderness area is the most restrictive, with only wilderness compatible uses authorized. The least multiple use restrictions occur on the grazing theme.

Fluid Minerals Recommendations

1. Continue current leasing categories. Continue current geophysical activity restrictions.

Category 1 - 514,510 acres (Open)

Category 2 - 26,700 acres (Open - Special Stipulations)

Category 3 - 40,585 acres (Open - No Surface Occupancy)

Category 4 - 45,880 acres (Closed)

There are presently 1,160 acres of restrictions in medium and high potential areas.

Mineral Mateirals Recommendations

1. Continue current management: Allow for sales and free use disposals of mineral materials wherever practicable with EA reviews.

There are presently three community pits designated for sand, gravel, or cinders.

The inventoried mineral material potential in the resource area is:

Cinders	49 acres
Clay	1,619 acres
Decorative Stone	2,037 acres
Gravel	14,030 acres
Petrified Wood	3,200 acres
Sand	1,036 acres

The environmental analysis process prior to authorizing mineral material sales ensures adequate safeguards from environmental degradation because the authorizing BLM official has full discretion whether or not a sale will occur.

Locatable Minerals Recommendations

1. Continue current management: Area remains open to mineral location according to 1872 Mining Law and applicable 3809 and 3802 regulations. Exempt is Beaver Dam Wilderness Area.

At the present time, there are approximately 23,000 claims covering about 460,000 acres.

There are surface protection restrictions triggering plans of operations on 35,220 acres.

Approximately 8,000 acres are segregated from mining under R&PP leases.

The withdrawal recommendations in the MFP to protect the Desert Woodbury Study Areas and Red Cliffs Recreation Area have not been implemented. Important resource values are not being adequately protected under 3809 regulations.

Rights-Of-Way Recommendations

1. Continue to provide land for rights-of-way on a case-by-case basis using the three defacto corridors as preferred locations for major utilities. The rapid growth in Washington County has resulted in an increasing demand for rights-of-way across public lands linking expanding communities and providing interstate services. The primary objective of the right-of-way program in the DRA is to provide land for rights-of-way to meet the needs of the public and to minimize environmental degradation or other undesirable and unintended consequences. Encouraging use of defacto corridors as preferred locations for major utilities would minimize impacts and help protect sensitive resource values while helping provide for the needs of the public.

2. Microwave and transmitter locations needed in addition to the present four sites will be evaluated on a case-by-case basis. The West Mountain Peak site, 20 miles west of St. George, is close to capacity. A new communication site will be needed in that vicinity in the near future to accommodate demand.

3. Trespass right-of-way cases (eight identified) will be resolved. Trespass is the unauthorized use of public land and may be in the form of powerlines, telephone lines, pipelines, ditches, roads, fences, etc. To achieve better management of the public lands and fairness to all users, these unauthorized uses need to be settled. Settlement of wilful trespass would be first priority.

4. The WSAs, I-15, Black Ridge and other sensitive environmental areas will be avoided. Right-of-way route approval and selection will continue to avoid sensitive resources in order to provide for the protection of important public values.

5. Exclusion Area: Beaver Dam Wilderness Area (2,600 acres). These are areas protected by law and future rights-of-way can only be granted when mandated by law.

Lands Recommendations

1. Continue to dispose of lands previously identified as suitable for disposal in the MFP (12,535 acres - Fig. 3-1, Table 3-2). All disposal actions will require parcel specific EA/Land Reports to evaluate FLPMA disposal criteria. Disposal of lands not previously identified would continue to require a planning amendment (615,740 acres). The current management (MFP) objective of the lands program in the DRA is to manage the public lands in an orderly manner and to provide land near communities to help meet the public purpose needs caused by the rapid urban growth and expansion in Washington County. Preference would be given to state, county and local governments. Non-conforming actions would continue to be dealt with through plan amendments.

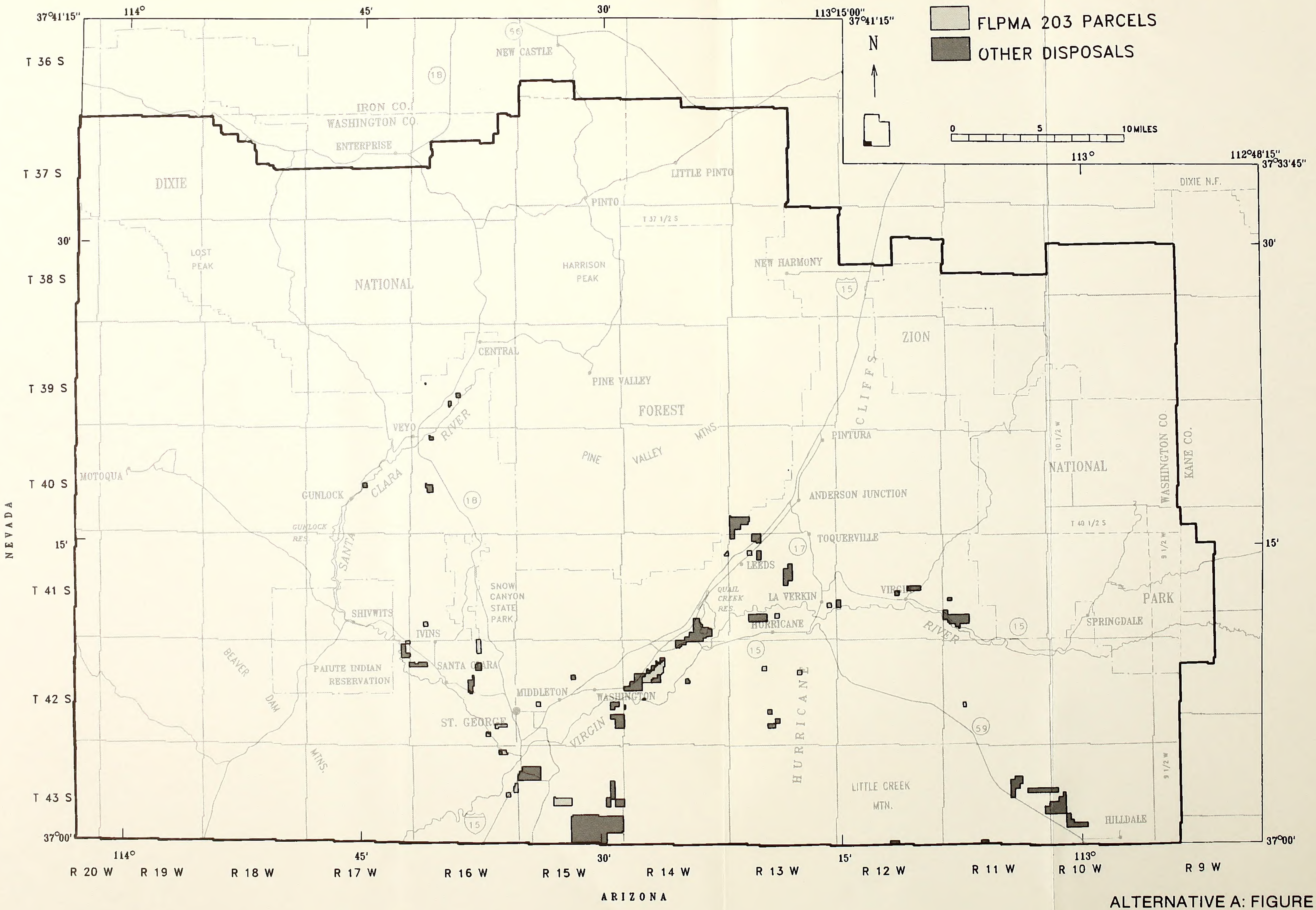
2. Continue to acquire land to improve public land ownership patterns and benefiting resource programs. Resource conflicts resulting from mixed surface estate and differing management goals can be reduced by acquiring parcels of state or private land through the exchange process. This would help create a blocked ownership pattern in the planning unit and lands important to other resource programs could be acquired.

3. Continue to issue land use authorizations on a case-by-case basis (average five annually). Land use authorizations are often used as a temporary measure in trespass abatement.

4. Continue to resolve trespass situations (26 identified trespasses encompassing about 300 acres of BLM land, 17 agricultural and nine occupancy). Current management policy has been to process trespass cases as discovered on public lands. With increased growth and associated activities, an increase in agriculture, housing, road, garbage dumping and other forms of trespass are occurring. Wilful trespass and trespasses affecting critical resources such as riparian areas would be first priority for trespass abatement.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

POTENTIAL LAND DISPOSAL



ALTERNATIVE A: FIGURE 3-1

Table 3-2 (cont.)

LAND DISPOSALS

Parcel No. [a]	Acres	Potentially Meets FLPMA Sale Criteria [b]	Meets FLPMA Criteria for Other Disposal Actions [c]
48c	197.90		x
48d	516.90		x
51	545.32		x
52	168.40		x
57	44.58	x	
58	94.86		x
60	320.00		x
64	320.00		x
68	40.00	x	
69	40.00	x	
72	40.00	x	
73	40.00	x	
74	40.00		x
75	40.00		x
76	80.00		x
78	120.00		x
79	40.00		x
80	80.46		x
83	76.31		x
86	40.00		x
87	519.86		x
90	40.00	x	
93	360.00		x
95	74.65		x
107	8.82		x
108	11.40	x	
110	185.02		x
111	13.37	x	
112	80.00		x
113	15.00		x
114	10.00		x

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-2 (cont.)

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
115	41.41		x
116	40.00		x
119	20.00		x
120	114.06		x
127	277.12		x
128	991.79		x
136	140.00		x
	12,534.97		

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Withdrawal and Classification Recommendations

1. Continue current management of:

   a. The 2,593 acres segregated from mineral entry by R&PP classification. Lands classified under the R&PP Act are segregated from entry under the public land laws including the mining laws (43 CFR 2091.3-2). There is no provision for mineral entry or development on R&PP patents, even though minerals remain reserved to the United States. This provision protects R&PP lands from mining degradation and other forms of land disturbance.

   b. The 2,530 acres withdrawn from the public land laws for water reserves and a desalinization project. An Executive Order of April 17, 1926 established Public Water Reserve No. 107 which reserved the minimum amount of water necessary in springs and waterholes to provide water for the purposes of human and animal consumption. The purpose of reserving land surrounding important springs and water holes was to prevent monopolization of the surrounding public lands. The desalinization project involves the control of approximately 109,000 tons of salt per year that is being discharged into the Virgin River, a Colorado River tributary, by the LaVerkin Springs. The purpose of the investigation is to determine the feasibility of preventing or reducing the salt load.

c. The 2,229 acres under powersite withdrawal. These lands were classified as powersites under Classification 259 and were withdrawn from operation of the public land laws generally, excluding the mining and mineral leasing laws.

d. The 975 acres classified against desert land entries. Desert land entry in the locations applied for was deemed not in the public interest, does not serve important public objectives, and was not in compliance with the county or BLM land use plans.

Forestry Recommendations

1. Continue current management of woodland products on a demand basis for non-commercial fuelwood harvest; post sales; decorative/landscaping; pharmaceutical purposes; Christmas trees. The ten-year average annual harvest of 40,175 suitable acres was: 4,070 cords of fuelwood, 1,600 posts, 1,190 Christmas trees, 40 Joshua trees, 100 cactus, 7,700 pounds of yucca and 500 pounds of decorative shrubs. No harvest is allowed in WSAs, WA, T&E habitat, or ORV closures. Desert vegetation sales generally limited to 380 acres, sec. 6, T. 43 S., R. 18 W.

Grazing Management Recommendations

1. Current grazing authorizations would continue as listed in Table 2-5, pg. 51 Grazing Summary. Any adjustments to those authorizations would be made on the basis of needs identified through range monitoring studies or changes in Bureau policies or regulations.

2. Management of grazing allotments would continue as identified in allotment management plans, with coordination with other resource programs. Range improvement projects which have been identified in AMPs and are needed to meet management objectives but which have not been completed include 20 pasture fences, 33 cattleguards, nine spring developments, five catchments, two wells, six pipelines, and one reservoir.

3. Present range suitability classification would continue on all allotments. There are 495,000 acres classified as suitable for grazing and 133,000 acres classified as unsuitable.

Cultural Resources Recommendations

1. Continue current management to:

a. Develop and interpret suitable petroglyph and pictograph sites and develop, stabilize and interpret suitable archaeological sites other than rock art.

b. Conduct proper archaeological clearances on all projects.

c. Interpret and stabilize historic sites and trails as needed. Manage Ft. Pearce for maintenance of its historic values. Obtain mineral withdrawal.

d. Maintain Dinosaur Trackways and develop new Paleontological sites as necessary.

Wilderness Recommendations

1. Manage Beaver Dam Mountain Wilderness Area according to 43 CFR 8560 regulations and Wilderness Management Policy.

Under all alternatives, the DRA portion of the Beaver Dam Mountains Wilderness will be managed under regulations at 43 CFR 8560 and the Paiute and Beaver Dam Mountains WMP. In accord with the Arizona Wilderness Act of 1984, the 4,800 acres released from interim management will be managed for multiple use and not be reviewed for the wilderness option in this RMP.

Visual Recommendations

1. The VRM class objectives will be assigned based upon the relative value units identified in the current baseline visual inventory (Fig. 2-11, pg. 41).

VRM I - 2,635 acres
VRM II - 131,930 acres
VRM III - 333,285 acres
VRM IV - 159,570 acres

The VRM classes from the MFP and Hot Desert EIS are insufficient to meet current management objectives or reflect the current situation. The VRM Class II objective of retaining the existing character of the landscape is assigned to the 131,930 acres in 28 units with inventoried relative value ratings of II. The objective of partially retaining the existing landscape character (VRM Class III) is assigned to 333,285 acres in 34 units with relative values rated at III. Major modification of the existing landscape character (VRM IV Objective) would be allowed on 159,570 acres of 18 units with relative value ratings of IV. The Beaver Dam Mountains Wilderness is assigned a VRM I and the Bureau is prohibited by law from allowing any activity that would in any way alter the wilderness landscape.

Recreation Resources Management Recommendations

1. Maintain Dixie ERMA of 576,465 acres.

Under current management, most of the DRA is managed as an ERMA. Canaan Mountain and the Beaver Dam Mountains Wilderness are identified as SRMAs. Management of the ERMA emphasizes dispersed recreation management for the Red Mountain, Deep Creek, and Sand Mountain areas which are recreational land designations in the MFP. Current MFP management of the ERMA also emphasizes maintenance, visitor services, and upgrading of the Red Cliffs facility, and to a lesser degree, the Baker Dam recreation site.

Most of the resident recreation participation in dispersed activities occurs on the ERMA portion of the DRA. Because resident demand for dispersed recreation includes a wide variety of unstructured activities and activities dependent on various resources, virtually all locations within the ERMA are used at one time or another. In this sense, the current ERMA is a logical recreation management unit that meets the dispersed recreation needs of the Washington County population. Nonresident demand is more focused and involves limited areas of the ERMA along the major travel corridors and in the vicinity of Zion National Park. The Red Cliffs and Baker Dam facilities are located within the ERMA.

2. ORV - Retain present designations (Fig. 3-2).

Open to ORV use	567,370 acres
Limited to Existing Roads and Trails	
Beaver Dam Slopes (sensitive environment, desert tortoise)	27,550
Limited to Designated Roads and Trails	
Joshua Tree Natural Area and Woodbury Study Area (sensitive environment, desert tortoise)	3,160
Closed	
West Fork of Beaver Dam Wash (riparian values)	100
Ripple Arch (scenic values)	440
Baker Dam and Red Cliffs (recreation facilities)	200
Beehive Dome (T&E plants)	320
Price City Hills (T&E plants)	320
Red Bluff (T&E plants)	1,790
Canaan Mountain (scenic values, primitive recreation)	26,816
Beaver Dam Mountains Wilderness Area	2,260

Approximately 3,200 acres of the ERMA are currently closed to ORV use. Over a half million acres of the ERMA designated as open or limited are available to meet the increasing demand for ATV and four-wheel-drive touring activities. The Beaver Dam Mountains Wilderness SRMA is closed by law to ORV use. In support of the primitive recreation resource found there, 26,816 acres of the plateau top in the Canaan Mountain SRMA are closed to ORV use.

3. Clean up unsightly conditions where problems are identified. Investigate possible occupancy trespass.

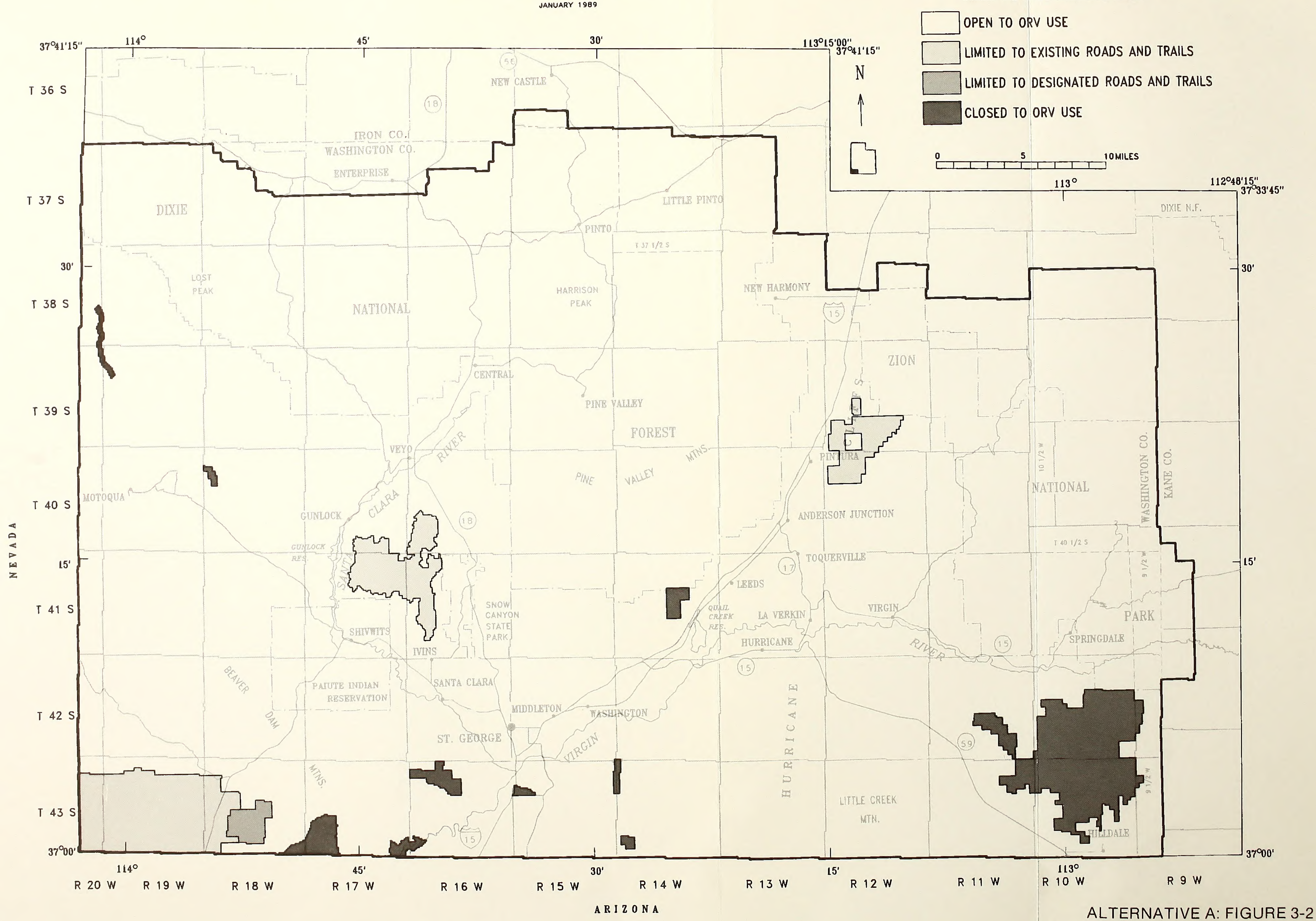
4. Upgrade camping, sanitation and picnic facilities at Baker Dam and Red Cliffs Recreation Areas in accordance with activity plans (as amended). Acquire private lands along the shoreline for potential facility expansion if opportunity is presented. Obtain mineral withdrawal.

5. Monitor Bloomington Cave use to determine if restriction measures are needed. Eliminate other hazards as needed. Inventory new caves as they are discovered.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

OFF-ROAD VEHICLE DESIGNATIONS

NOTE: Designations apply ONLY to land administered by the B.L.M. within the Dixie Resource Area.



ALTERNATIVE A: FIGURE 3-2

Under current management, use of the Bloomington Cave is monitored to determine if protective restrictions are needed. The Federal Cave Resources Protection Act of 1988 (P.L. 100-91) provides that Bloomington Cave or any cave identified in the DRA, if it is determined to be "significant", will be managed to the extent possible in a manner that will protect and maintain the cave. Protection and maintenance is afforded significant caves under all alternatives.

6. Retain current boundaries of Woodbury Study Area (3,040 acres). Eliminate noncompatible uses which disrupt natural processes. Pursue mineral withdrawal.

7. Maintain recreation lands theme for Red Mountain, Deep Creek, Canaan Mountain, LaVerkin Creek, and Sand Mountain.

Under Alternative A management, the Canaan Mountain and Beaver Dam Mountains SRMAs would not be verified as management units through the RMP process. No other SRMAs are identified. The "recreation lands" located in the Red Mountain, Deep Creek, LaVerkin Creek, and Sand Mountain areas would remain in the ERMA. The purpose of the delineating SRMAs is to establish the basic for management, funding, and activity planning priorities. Alternative A management is focused on the extensive recreational needs of the resource area. Canaan Mountain would receive emphasis because of its recreational history. Sustained yield management of the dispersed recreation activity and experience opportunities identified in the baseline recreation inventory for the Red Mountain, Santa Clara River, Deep Creek, LaVerkin Creek, Sand Mountain, and Quail Creek areas would not be practiced under ERMA management objectives.

Soil-Water-Air-Riparian Recommendations

Soil-Water-Air

Current soil-water-air management in the DRA is based on the decisions made in the Virgin River MFP and implementation of Bureau policy.

A total of ten decisions were made in the MFP, five have been implemented. The remaining five involve ongoing soil-water-air needs and these, along with policy guidance, will be continued. These are listed and discussed separately in the following narrative.

1. Continue to manage the Resource Area to increase cover and enhance watershed values.

This decision affected 114,000 acres identified by the Phase I watershed survey as having the potential for vegetative cover to increase and the Soil Surface Factor (SSF) class to decline from moderate to slight. The rationale behind the decision is that a reduction in SSF also results in a reduction in erosion and hence an improvement in water quality, site productivity and off-site flood and sediment damage.

2. Continue to manage the watersheds of City Creek and Frog Hollow.

These two watersheds were identified as flood producing areas to downstream private lands. The decision was to restrict surface uses that would disturb or destroy vegetative cover. This decision is still needed even though flood retention structures have been built to protect private lands.

3. Retain in public ownership, sites for Warner Valley PL566 projects.

This decision pertains to three flood control structures built to prevent flood damage to farmland in the Washington Fields area. The continued retention of the land in public ownership where the structures are located, will assure their continued viability.

4. Protect Curly Hollow from surface disturbing activities.

The Curly Hollow critical watershed was proposed for protection because of the potential erodibility of the soils in the area. The soil, once the surface cryptogamic cover is destroyed, is highly erodible.

The major use causing the destruction of the crust was ORV use. The decision was to limit ORV use to existing roads and trails. The ORV limitation will continue in this alternative.

5. Comply with National Ambient Air Quality Standards and Significant Air Quality Deterioration Regulations.

Management in the DRA is also based on policy guidance. The implementation of policy has been through the EA process. Proposed actions are analyzed for these impacts to soil-water-air-riparian resources and are either disallowed or approved with mitigation. In the DRA, most analysis has involved water rights issues and floodplain determintations. This process will continue in this alternative.

Riparian

Riparian area management under this alternative will be based on a combination of MFP decisions and Bureau Riparian Policy statements dated January, 1987 and May, 1987.

The MFP decisions still needed and included in this plan are as follows:

1. Mitigation measures for riparian habitat protection. This decision forms the basis for the current riparian area management program in the DRA.

Riparian areas are protected by stipulations in mineral leases, protection from mineral material sales and livestock exclusion fences where appropriate. Riparian area impacts have been analyzed in environmental assessments on a case-by-case basis. Actions found incompatible have been modified, mitigated or disapproved. Monitoring studies have been established in riparian areas where grazing conflicts may be occurring.

2. Place livestock salting-supplement blocks at least 0.5 miles from water sources and riparian habitat.

The decision was to help keep livestock away from riparian areas so grazing impacts are reduced. The second part of the current situation involves the implementation of a riparian initiative. The new direction comes from policy statements released by the Bureau's Washington Office in January, 1987 and the Utah State Office in May, 1987. The policies provide a renewed emphasis on riparian area management.

The Cedar City District Office is in the process of developing guidance on riparian management techniques such as monitoring and rehabilitation practices which will be implemented as developed.

Policy guidance involving land exchanges and necessary construction in riparian areas is currently being followed. Exchange proposals are entertained only when riparian areas of equal or superior value are being obtained.

Proposals for construction within riparian areas will be approved or disapproved by first determining if there is an alternative to placing the action in the riparian area, and second, if the action must be placed in the riparian area, all long-term impacts will be fully mitigated.

3. Continue to protect and enhance riparian and aquatic habitat from significant surface disturbances according to current laws and policy. Continue monitoring studies in these habitats. Retain public lands among riparian and aquatic areas except in cases where BLM can exchange for equal or greater riparian values. Continue to protect and develop viable fisheries where practical.

Wildlife Recommendations

1. Management of mule deer habitat would continue as identified in habitat management plans. The HMP objectives to benefit deer which have not been completed include a 500-acre chaining at Potter's Peak to improve the diversity and palatability of browse species on deer winter range, ponding of excess water at new pipeline terminuses and fencing a portion of those ponds to increase cover around those waters, and allowing greenwood cutting on 7,500 acres of critical deer winter range to slow encroachment of pinyon and juniper.

2. Management of desert bighorn sheep habitat would continue as identified in HMPs except in allotments where domestic sheep permits are valid. The HMP objectives to benefit bighorn sheep which have not been completed include the construction of 14 water catchments in Beaver Dam and Red Mountains to enhance 109,000 acres of current and potential habitat.

3. Present wildlife habitat area boundaries would be maintained for developed HMPs.

4. Management of Gambel's quail habitat would continue as identified in HMPs. The HMP objectives to benefit quail habitat which have not been completed include the construction of 11 water catchments in areas presently without permanent water to improve 7,000 acres of habitat, ponding of excess water at new pipeline terminuses and fencing a portion of those ponds to

increase cover around those waters, and planting and fencing 45 acres of fourwing saltbrush and desert almond to improve quail brood habitat by increasing vegetation density from 25 to 35 percent.

Threatened and Endangered Animals Recommendations

1. Continue to manage habitat for T&E species and other species of special interest according to current laws, policies and regulations. Main emphasis has been on retention of public lands with T&E species and Section 7 consultation on all projects which could impact T&E species.

2. Continue current decisions on withdrawals and other surface management constraints (such as ORV restrictions).

Threatened and Endangered Plant Recommendations

1. Continue to manage habitat for T&E species and other species of special interest according to current laws, policies and regulations. Main emphasis has been on retention of public lands with T&E species and Section 7 consultation on all projects which could impact T&E species.

2. Continue current decisions on withdrawals and other surface management restrictions.

ALTERNATIVE B

The Alternative B Multiple Use Management map displays a heirarchy of management decisions to resolve issues and management concerns expressed in Chapter 1. The statutory responsibilities for the Beaver Dam Mountain Wilderness Area is nondescretionary and compatible activities are spelled out in Wilderness Management Policy. Designation of two right-of-way corridors would help accommodate long-range interstate utility planning and reduce likelihood of massive scenic intrusions in critical public viewsheds.

Designated disposals would accommodate the desires of state and community planning interests and help rid BLM of management problems within city limits and near community fringe areas. Delineating non-federal lands for exchange acquisition would be a means of resource enhancement, produce mutual benefits from exchange proposals and would mitigate "loss" of values from disposal actions. Updating oil and gas leasing categories would be a tool to provide various levels of surface disturbance protection on important habitats and water producing areas and other areas needing special management.

Establishing ACECs would "highlight" areas which qualify with special management needs. Establishing SRMAs would help resolve recreational opportunity conflicts and provide management direction toward accommodating the new emphasis on outdoor recreation and tourism.

Fluid Minerals Recommendations

The following fluid mineral leasing categories will be implemented for Alternative B.

Category 1 - 419,065 acres (Open)

Category 2 - 82,920 acres (Open Special Stipulations)

Category 3 - 123,055 acres (Open No Surface Occupancy)

Category 4 - 2,635 acres (Closed)

Restrictions are imposed by other resource values as follows:

a. All desert tortoise habitat with 20 tortoise or more per sq. mi. and designated (F&WS) critical habitat on Beaver Dam Slope in Category 2 with seasonal restrictions from April 1 to October 31.

b. All bear claw poppy and Siler cactus plant T&E habitat in Category 3 - NSO.

c. All riparian areas in Category 3 with NSO buffer to protect riparian zone and aquatic areas as follows: One fourth (1/4) mile buffer each side of the channel on riparian areas except West Fork of Beaver Dam Wash which will be 1/2 mile wide on each side of the channel.

Where it can be determined that a location within a buffer, i.e. on or nearby an existing road or other disturbed area where environmental disturbance would be less than outside the buffer zone, then exceptions may be allowed.

d. Special stipulations (Category 2) on all identified municipal watersheds and Navajo Sandstone acquifer. Stipulations to protect groundwater from contamination will be addressed in Application Permit to Drill (APDs).

e. Special stipulations (Category 2) on the West Fork Beaver Dam Wash water protection zone. Stipulations to protect watershed will be addressed in site specific APDs.

f. All critical big game winter range in Category 2 with seasonal stipulation from November 1 through April 15. Exceptions may be granted in years when big game are not using winter range.

g. All primitive zone (P) ROS classes external to WSA boundaries in Category 3 NSO. Establish NSO on WSA lands with P prescriptions if released from IMP.

h. Baker Dam and Red Cliffs developed recreation areas retain present Category 3 NSO.

i. The R&PPs and other small tract classifications in Category 2 with special stipulations to protect purpose of the classification. Stipulations will be addressed in site specific APDs.

j. Split estate leasing which falls into restriction areas will receive the same categories and stipulations as the public lands. Those which are on the edge of a restriction area will receive the least restriction category.

Fig. 3-3 shows fluid mineral categories recommended for this alternative.

Mineral Materials Recommendations

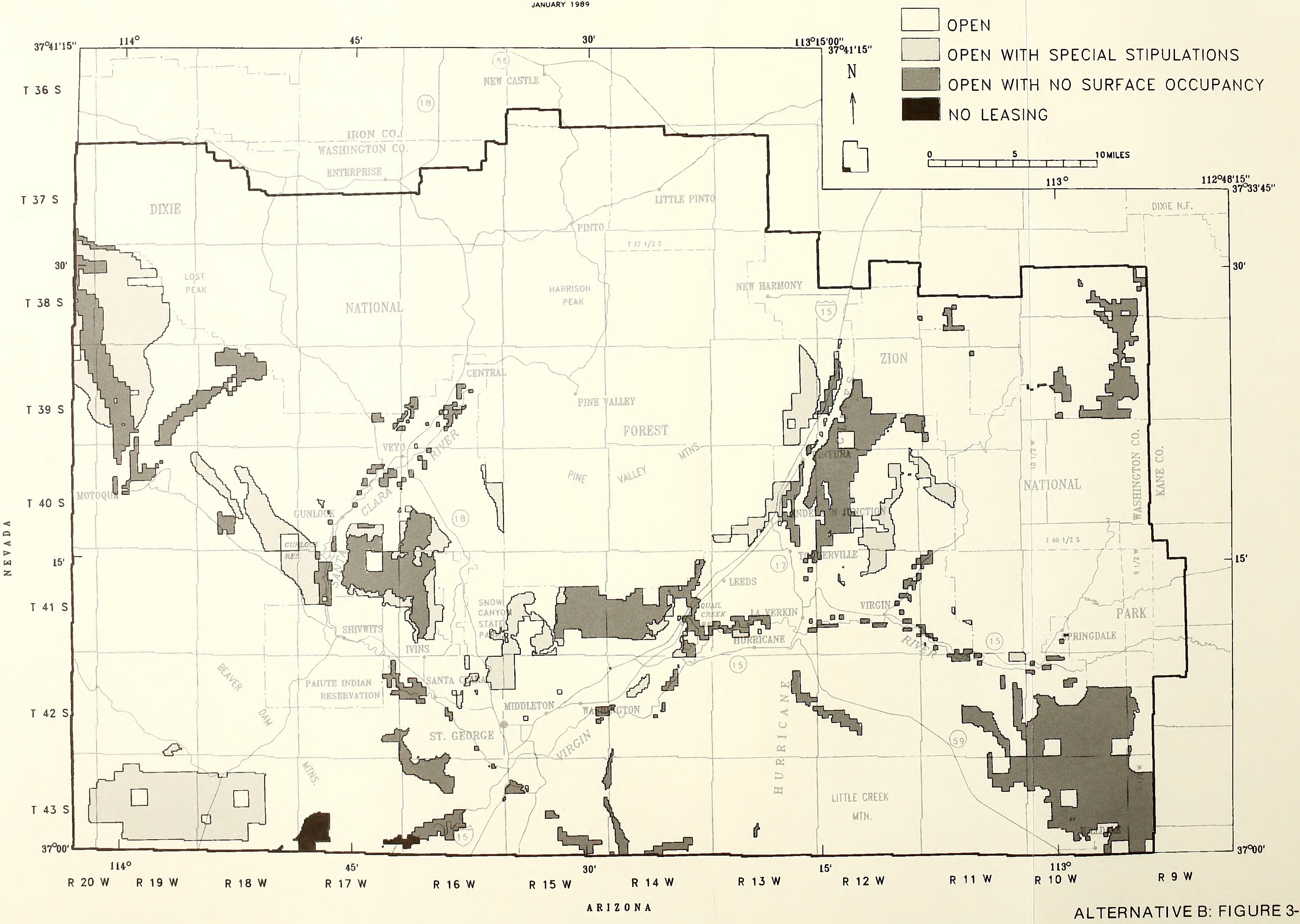
1. Continue current management (pg. 92) but with the following restrictions. The Resource Area will remain open for mineral material sales with environmental assessment review except where limited by other restrictions pertaining to surface disturbances such as:

- ORV restrictions
- Primitive ROS classes
- Riparian zones
- Campgrounds
- T&E plant and animal habitat

Total 131,520 acres with known restrictions.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

FLUID MINERALS LEASING CATEGORIES



ALTERNATIVE B: FIGURE 3-3

Locatable Minerals Recommendations

1. Continue current management (pg. 93). Eighty seven (87) percent of Resource Area remains open to mineral location according to the 1872 Mining Laws and applicable 3809 and 3802 Regulations. Exempt is Beaver Dam Wilderness Area.

Closures will increase to 13,600 acres. This is an increase of 3,230 acres.

Other surface management restrictions will be in effect on 118,670 acres.

Rights-of-Way Recommendations

1. Designate two interstate utility corridors one mile wide (1/2 mile on either side of center line of present IPP and Navajo McCullough lines (Fig. 3-4).

a. Intermountain Power Project Corridor
b. Navajo McCullough Corridor

Major transmission facilities can be planned for and their impacts minimized by actively encouraging placement of major facilities in designated corridors. Designation of corridors will help protect sensitive resource values, expedite right-of-way processing and preserve scenic landscapes. These corridor locations coincide with the long range corridor needs and assessments identified by the utility industry in their Western Regional Corridor Study completed in 1986. They also correspond with BLM corridor designations in neighboring Arizona and Nevada and corridors identified in the Land and Resource Management Plan for the adjacent Dixie National Forest.

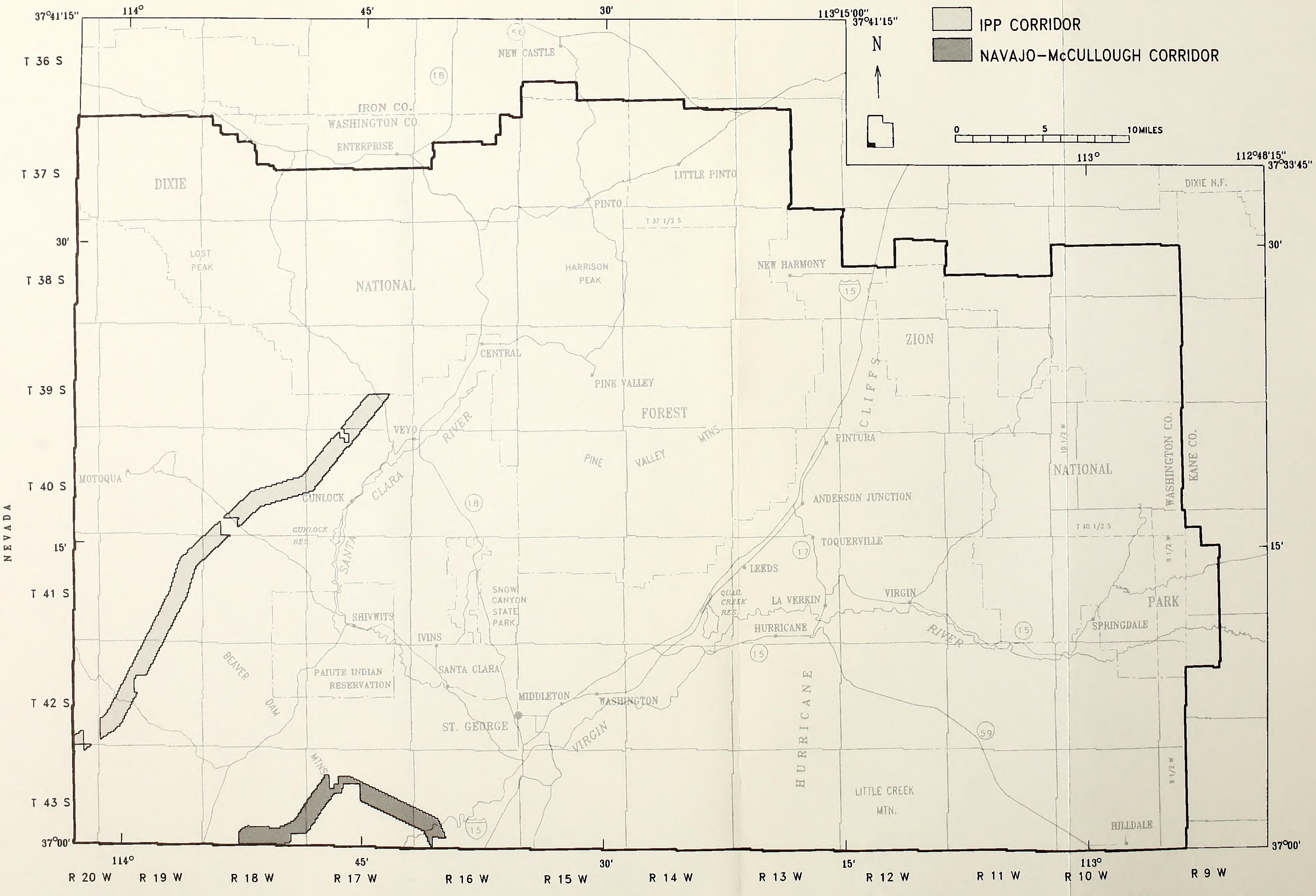
2. Avoidance areas for rights-of-way:

All VRM I and II (132,845 acres)
T&E Habitat (61,745 acres)
ROS Primitive Zone (61,700 acres)
Riparian (for pipelines) (4,855 acres)
ORV Closures (82,100 acres)
ACEC (any restrictions will be based on management prescriptions developed for that particular ACEC)

These are areas where future rights-of-way may be granted only when no feasible alternative route or designated right-of-way corridor is available. This designation would protect identified special management areas, such as, areas containing T&E plants or animals, areas with archaeological values, SRMAs, and ACECs.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

DESIGNATED UTILITY CORRIDORS



ALTERNATIVE B: FIGURE 3-4

3. Exclusion Area:

Beaver Dam Mountains Wilderness Area (2,635 acres)

An exclusion area is an area where future rights-of-way may be granted only when mandated by law. Right-of-way exclusion areas include parks and wilderness areas. The Beaver Dam Wilderness Area would be the only designated exclusion area in the planning unit.

4. Other areas remain open for rights-of-way and would be evaluated on a case-by-case basis with minimum widths. Location of communication sites would also be permitted except where values surface during the environmental assessment which are incompatible and the other values outweigh the use as a communication site.

5. Trespass (same as Alternative A, No. 3, pg. 93).

6. All rights-of-way will remain open to other uses which do not interfere with the purpose of the right-of-way such as cycling, walking paths and other rights-of-way.

7. Any capital investments within designated corridors will be carefully evaluated.

Lands Recommendations

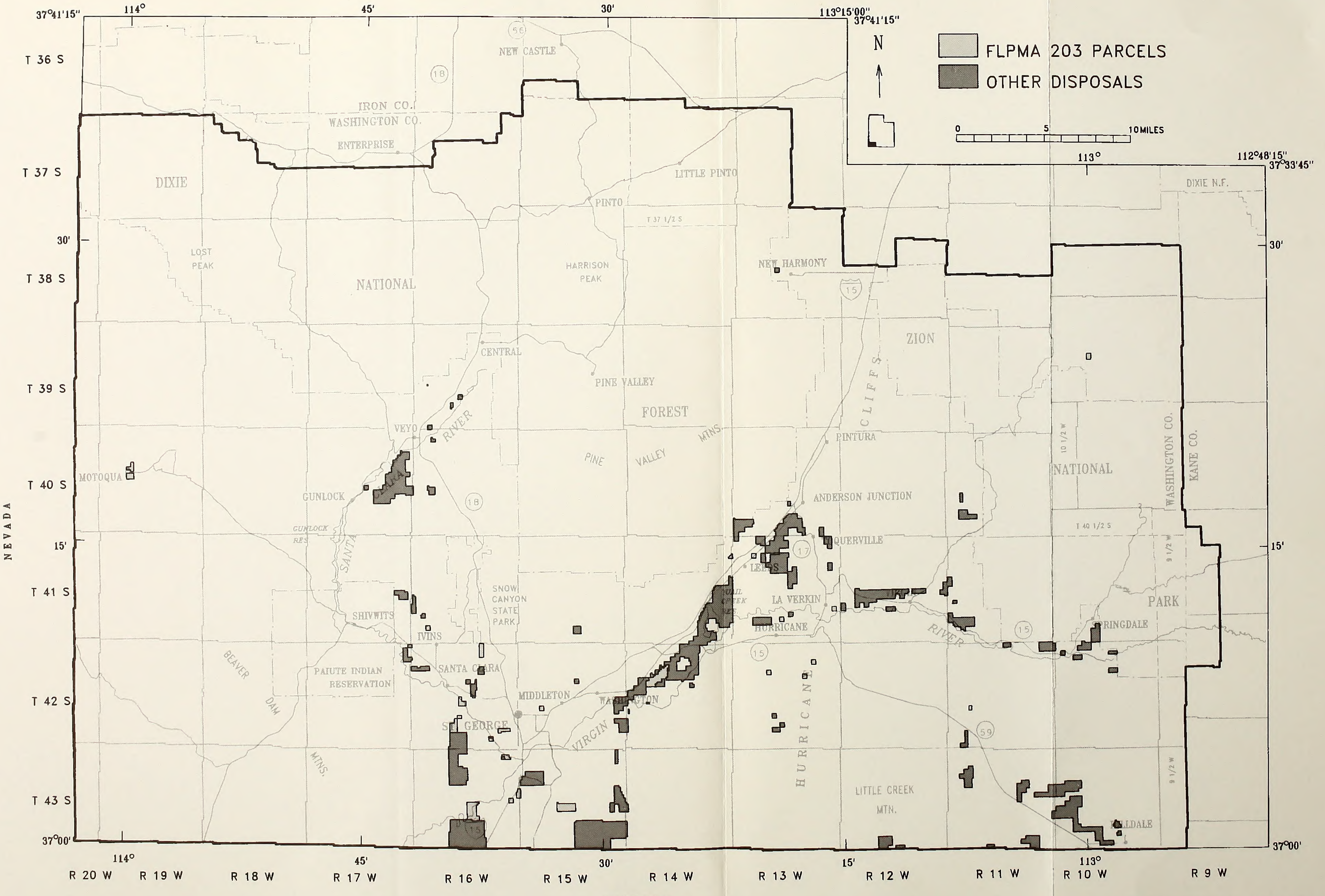
1. Opportunity for land tenure adjustments - approximately 32,649 acres (Table 3-3, Fig. 3-5). These are land disposals brought forward from the MFP as well as additional lands identified as a result of expressed public interest from state and local government and private individuals. This alternative would emphasize land tenure adjustment with priority given to accommodating identified community and state land acquisition requests. Emphasis would be given to exchanging tracts of public land identified by BLM. Exchanges could be made on a case-by-case basis for public lands where resource values of acquired lands (Fig. 3-6) are equal or superior to resource values of selected lands or where adverse impacts on historic or cultural sites can be adequately mitigated. Sales at fair market value would only occur on identified tracts meeting FLPMA sales criteria analyzed in the parcel specific EA/Land Report process.

This alternative would accommodate community growth, private interests and improve BLM management by blocking public land and disposing of management problems identified in issue Number 1.

2. Non-disposal will be in effect on 594,440 acres. Disposal of lands not identified as having potential for land tenure adjustments would require a planning amendment or could be considered for exchange if certain criteria were met. The bulk of public lands in the Resource Area would fall into this category and would generally remain in public ownership. These lands would be managed under the principles of multiple use management and for the protection and enhancement of critical public values.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

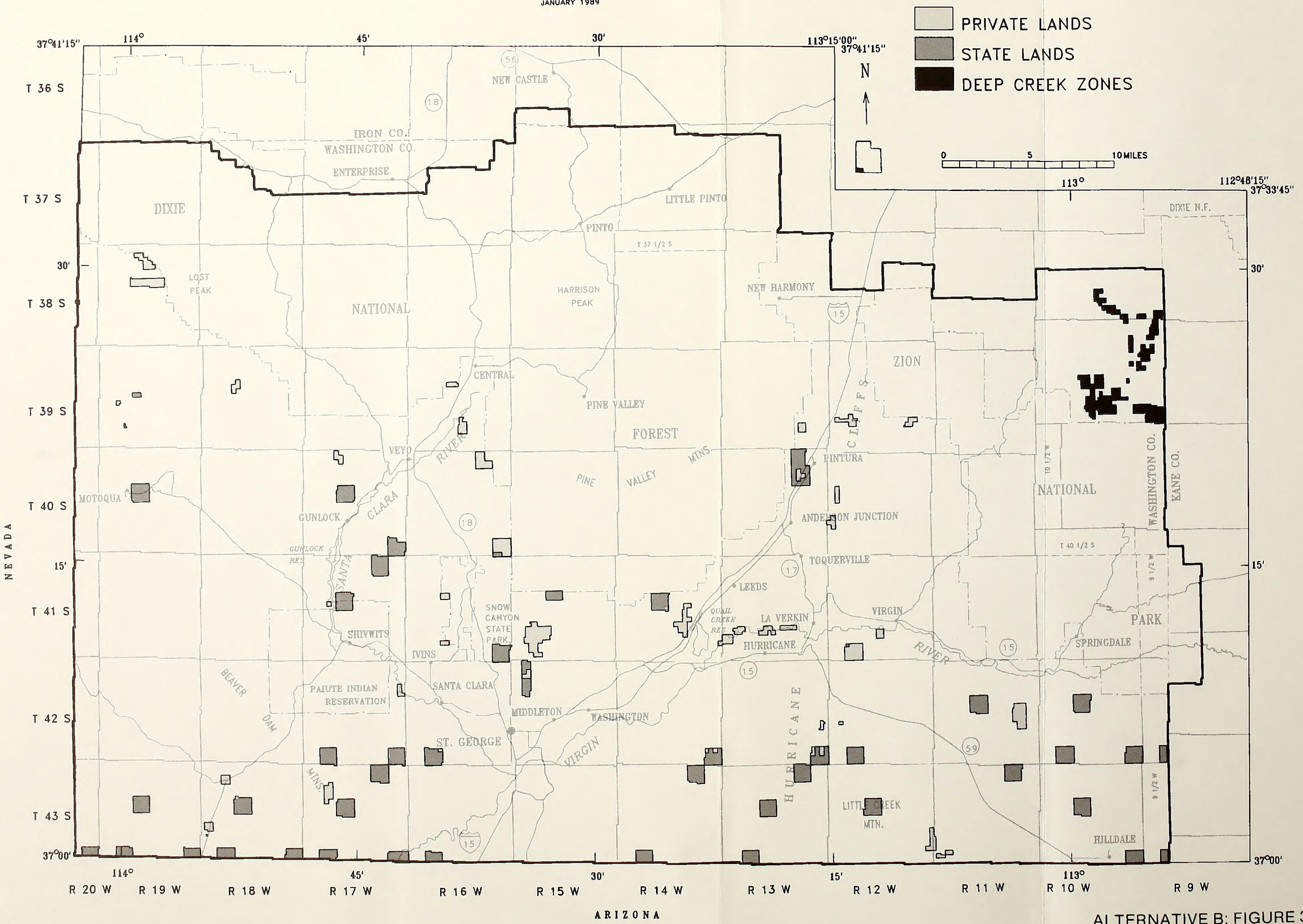
POTENTIAL LAND DISPOSAL



ALTERNATIVE B: FIGURE 3-5

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

POTENTIAL LAND ACQUISITION



ALTERNATIVE B: FIGURE 3-6

Table 3-3

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
1	112.50	x	
2	120.00	x	
3	5.00	x	
4	40.00		x
5	2080.00		x
6	40.00	x	
7	160.13		x
8	40.00		x
9	32.50		x
10	40.00		x
11	40.00	x	
13	119.28	x	
17	120.00	x	
18	122.45	x	
19	25.00	x	
20	57.65	x	
21	1674.28		x
22	315.54	x	
23	79.16	x	
24	40.00	x	
25	2005.54		x
26	160.00		x
27a	440.00		x
27b	40.13		x
28	240.00		x
29	120.00		x
30	280.00		x
31	534.14		x
32	250.00		x
33	160.00		x
34	40.00	x	

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-3 (cont.)

LAND DISPOSALS

Parcel No. [a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
35	320.00	x	
36	80.00		x
37	160.00		x
38	511.84		x
39	2331.08		x
40	38.39	x	
42	111.25		x
43	1463.39		x
44	120.00		x
45	80.00		x
46	40.00		x
47	500.00	x	
48	1366.71		x
48a	631.69		x
48b	209.50		x
48c	197.90		x
48d	516.90		x
50	40.00		x
51	545.32		x
52	168.40		x
53	1074.13		x
54	120.00		x
55	80.00		x
56	206.63		x
57	44.58	x	
58	94.86		x
59	708.75		x
60	320.00		x
61	80.00		x
64	320.00		x
67	40.00		x

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-3 (cont.)

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
68	40.00	x	
69	40.00	x	
70	40.91	x	
72	40.00	x	
73	40.00	x	
74	40.00		x
75	40.00		x
76	80.00		x
77	1120.00		x
78	120.00		x
79	40.00		x
80	80.46		x
81	80.00		x
82	317.42		x
83	76.31		x
84	80.00		x
85	240.00		x
86	40.00		x
87	519.86		x
88	73.66		x
89	310.79		x
90	40.00	x	
91	200.00		x
92	400.00		x
93	360.00		x
95	74.65		x
96	356.12		x
97	280.00		x
98	160.00		x
99	40.00		x
100	80.00		x

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-3 (cont.)

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
101	40.00		x
102	80.00		x
103	954.10		x
104	880.00		x
105	40.00		x
107	8.82		x
108	11.40	x	
109	40.00		x
110	185.02		x
111	13.37	x	
112	80.00		x
113	15.00		x
114	10.00		x
115	41.41		x
116	40.00		x
117	70.00		x
118	40.00		x
119	20.00		x
120	114.06		x
122	240.68		x
123	39.03	x	
124	200.00	x	
125	80.12		x
127	277.12		x
128	991.79		x
129	80.00		x
130	140.00		x
131	190.49		x
132	20.00		x
133	20.00		x
134	40.00	x	
136	142.02		x
	32,649.23		

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

3. Issue Special Land Use Permits on a case by case basis (same as Alternative A, No. 3, pg. 94).

4. Opportunity to acquire up to 42,881 acres through exchange, purchase or gifts (Appendix - Lands Identified for Acquisition Table). Acquisitions are considered to have long term high positive benefits to soil, water, air, riparian, T&E species and recreation because of the opportunity to acquire land containing important public values and to improve land patterns and management opportunities through blocking of the public lands.

5. Settle trespass situations (17 agricultural and nine occupancy). Six agricultural trespasses have been inventoried in riparian areas. Trespasses in riparian areas will be settled, where practical, by exchange for equal or better value riparian land. Trespasses known to affect riparian areas and wilful trespass would take first priority. Resolving trespass situations would provide positive benefits by maintaining important public resources and through improved management.

6. Obtain easements across state and private lands which link public lands in order to assure public access rights. An opportunity also exists to acquire access along the Virgin River for hunting and other recreation purposes. This would be non-motorized access only. Access should be acquired from the middle of sec. 30, T. 41 S., R. 13 W., above Quail Creek Reservoir to the west side of sec. 19, T. 42 S., R. 14 W., by Washington, a distance of approximately 6.5 miles across private land and 1/4 mile on state land. Width of easement would be that area within the floodplain of the Virgin River. Benefiting activities are recreation and wildlife.

7. Reserve easements when needed across parcels of disposal land in order to protect public values and provide continued public access to other public lands. Easements would provide substantial benefits to management and users of the resources by assuring access to the public lands (Fig. 3-7).

Withdrawal and Classification Recommendations

1. Continue current management (pg. 98).

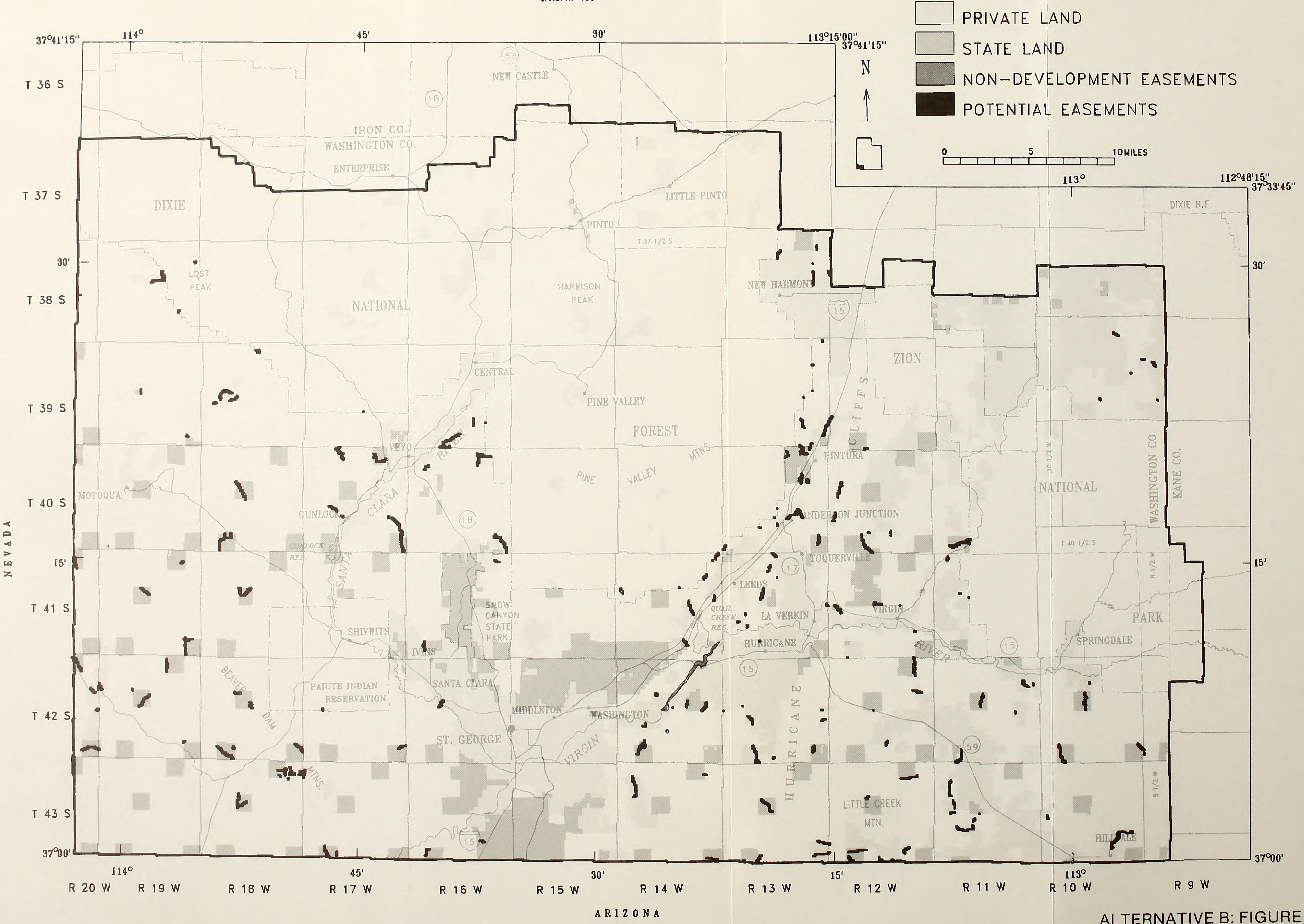
Withdrawals will increase in acreage from 4,759 acres to approximately 8,000 acres. This increase is for the protection of desert tortoise habitat in the Woodbury Study Area.

Forestry Recommendations

1. Limit fuelwood harvest to dead and down throughout the Resource Area except in riparian areas and WSAs which will remain closed. The WSAs will be available for fuelwood harvest if they are released from wilderness consideration in accordance with any ORV restrictions. This recommendation would allow the harvest of wood areawide that would otherwise not be utilized.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

POTENTIAL EASEMENTS



ALTERNATIVE B: FIGURE 3-7

2. Allow noncommercial harvest of green fuelwood on a sustained yield basis of 1,200 cords/year on all stands identified on the forestry overlay. Noncommercial greenwood harvest on Little Creek Mountain will be limited to 500 cords/year. Limiting greenwood fuelwood harvest to 1,200 cords annually would allow fuelwood to be harvested on a sustained yield basis indefinitely. Limiting harvest on Little Creek Mountain to 500 cords would prevent overutilization of green fuelwood since this location is close to the St. George-Hurricane area and easily accessible.

3. Allow for a commercial greenwood contract on the proposed Potter's Peak wildlife chaining (500 acres). This contract would allow the harvest of fuelwood that might otherwise remain unused since this location is fairly remote. It is unlikely that noncommerical cutters would travel that far for wood.

4. Allow noncommercial sales of posts from all green fuelwood harvest areas with a limit of 2,000 posts per year throughout the area. Limiting post harvest to 2,000 per year would allow posts to be harvested on a sustained yield basis indefinitely.

5. Allow only 500 noncommercial Christmas tree permits/year from old treatment areas. Limiting Christmas tree harvest to 500 trees annually would allow Christmas trees to be harvested on a sustained yield basis indefinitely.

6. Expand the noncommercial desert vegetation sale area to include all of the area on the Beaver Dam Slope north of the Castle Cliff Road, west of the Welcome Springs Road, and east of the Eardley Road. Expanding the harvest of desert vegetation to a larger area would reduce usage on the current harvest area. Overall, harvest from any given location would be light, since an average of only 40 Joshua trees and 100 cactus are harvested annually.

7. Allow the sale of other vegetation permits on a case-by-case basis. These sales are usually for ornamental shrubs or seed and often involve species which do not occur in the desert vegetation sale area. Sales of this nature do not occur often, so it is more practical to handle these sales on an individual basis rather than establishing specific sale areas.

Grazing Management Recommendations

Continue current management from Alternative A, No. 1, 2, 3, (pg. 99). The grazing program will be expanded with the following recommendations.

4. Ecological site descriptions for program management consistency will be developed. Ecological site descriptions would provide more detailed information on a given site such as forage production potential, vegetation composition, and erosion potential. This type of information would be useful for all natural resource programs.

5. Range projects can be initiated in allotments determined to be lacking proper livestock control or distribution. Allotments with livestock control problems can usually be corrected by constructing drift fences at trouble spots or replacing gates with cattleguards. Allotments with livestock distribution problems can usually be corrected by constructing additional

waters in areas with light use or by constructing pasture fences to restrict use to a smaller, more manageable area. Many of these projects have been identified in AMPs, but have not been installed because of funding priorities. A few are new projects which may require revision or modification of existing AMPs. The purpose of these projects is to prevent overutilization of forage in portions of allotments through control or redistribution of livestock use.

6. Land treatments can be initiated in allotments with livestock grazing problems as an alternative to livestock forage adjustments. Treatments such as chainings, prescribed burns, or plow and seeding can provide additional forage and AUMs in allotments that, through monitoring studies, show a need to reduce numbers of livestock. Treatments may be managed as a separate pasture.

Cultural Resources Recommendations

1. Continue current management from Alternative A:

   a. Develop and interpret suitable petroglyph and pictograph sites. Develop, stabilize and interpret suitable archaeological sites other than rock art.

   b. Conduct proper archaeological clearances on all projects.

   c. Interpret and stabilize historic sites and trails as needed. Manage Ft. Pearce for maintenance of its historic values.

   d. Maintain Dinosaur Trackways and develop new Paleontological sites as necessary.

2. Establish four ACECs (Fig. 3-8) for special management of the following areas with concentrations of National Register caliber archaeological resources:

   a. Little Creek Mountain
   b. Virgin River (lower)
   c. Santa Clara (Land Hill section)
   d. Santa Clara (Gunlock-Shivwits)
   (see preliminary management prescriptions pg. 142)

Wilderness Recommendations

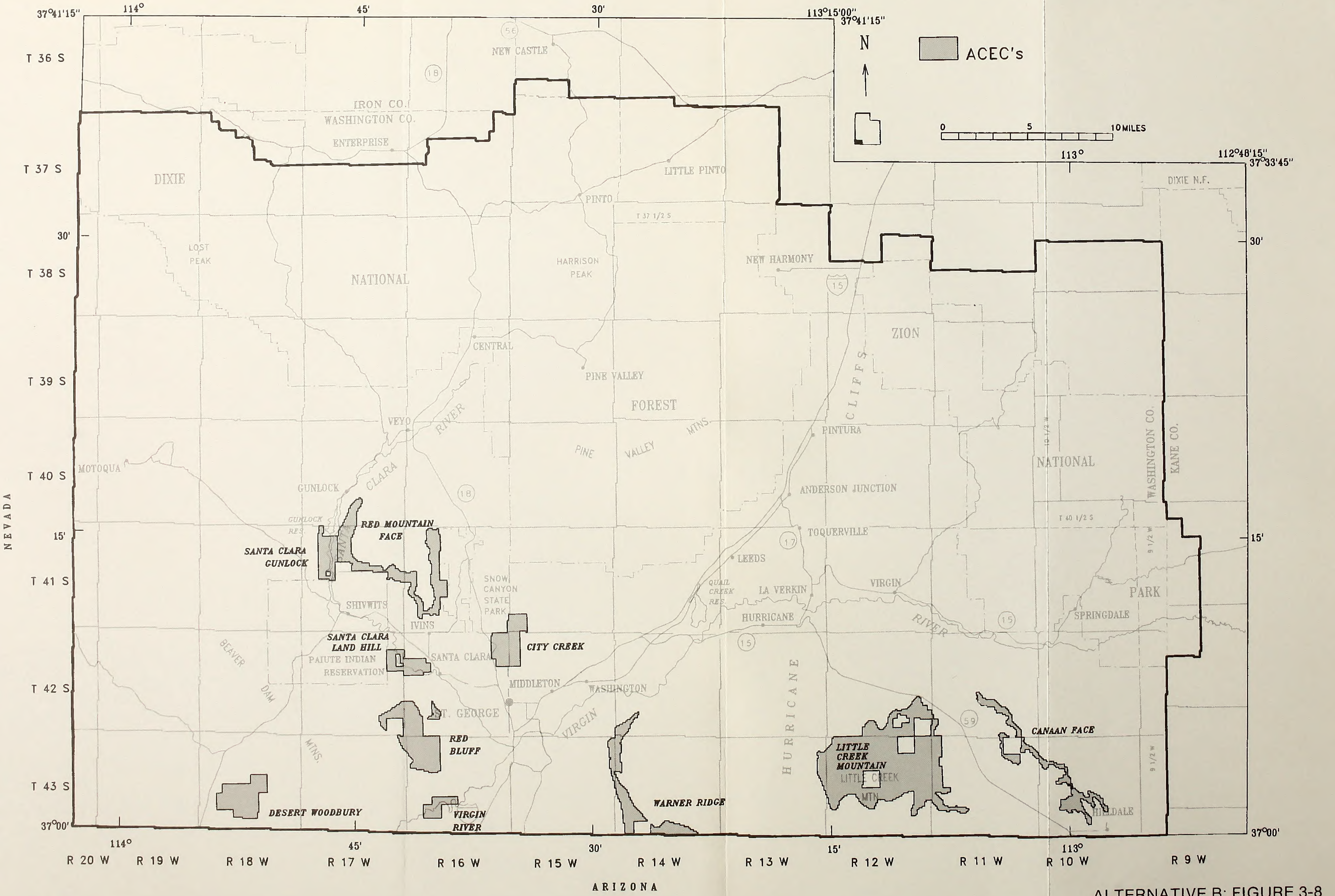
1. Manage Beaver Dam Mountain Wilderness Area according to 43 CFR 8560 regulations and Wilderness Management Policy.

Visual Resources

Under Alternative B, most surface management goals for the DRA landscape are the same as Alternative A, No. 1 (pg. 100). However, there are an additional 8,840 acres in VRM Class 1 corresponding to the two visual ACEC recommendations on Red Mountain and Canaan Mountain (Figs. 3-8, 3-9).

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

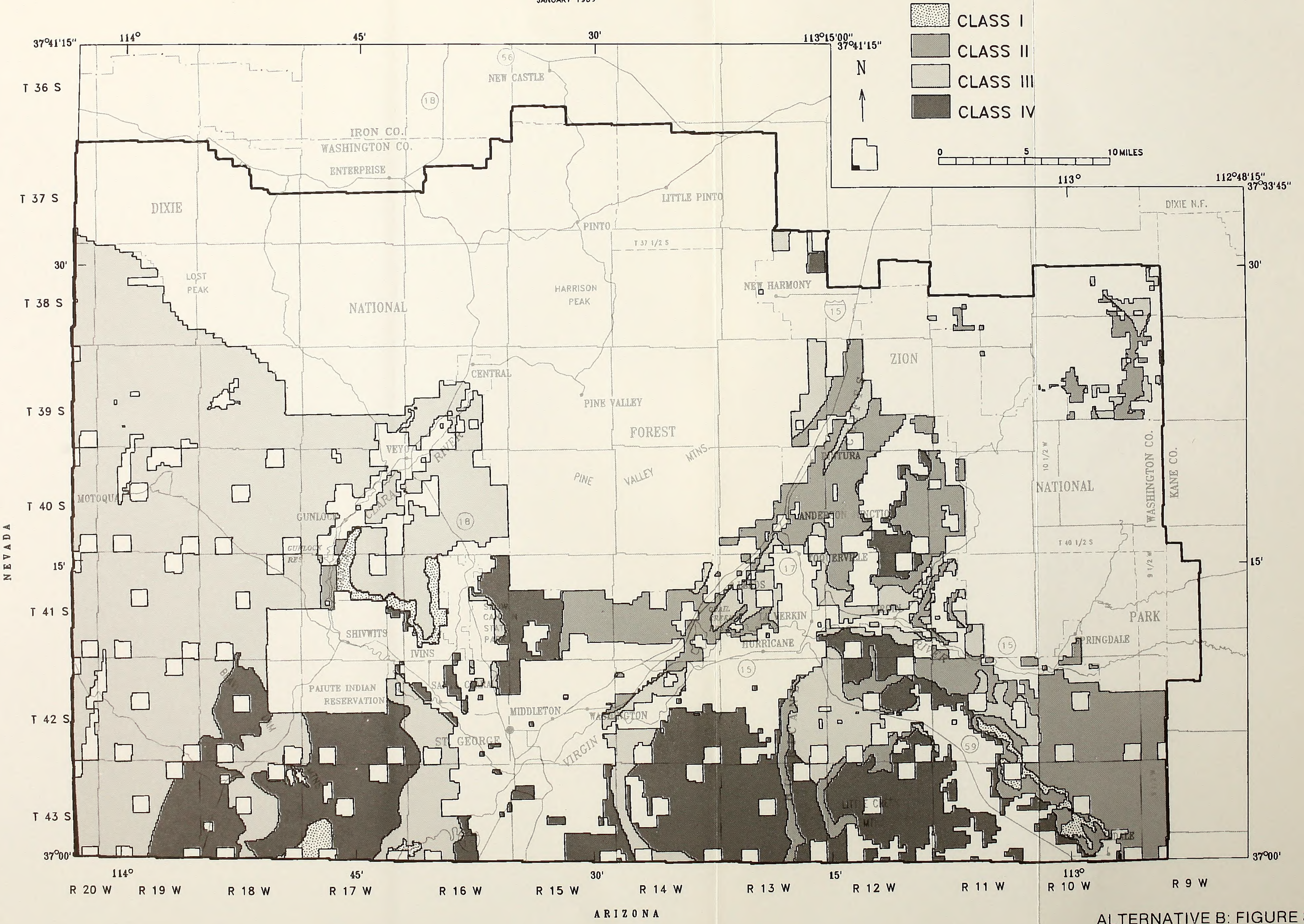
AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)



ALTERNATIVE B: FIGURE 3-8

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

VISUAL MANAGEMENT CLASSES



ALTERNATIVE B: FIGURE 3-9

The following recommendations provide additional emphasis for the management of visual resources in the DRA:

1. Full retention of the landscape character is the goal for much of the area adjacent to Zion National Park, on the Warner Ridge and Red Mountain escarpments, and in Snow and Cottonwood Canyons. An objective of partial retention of landscape character is assigned to the Joshua Tree Forest on the Beaver Dam Slope, upper watersheds of the Beaver Dam Wash, the upland areas of the Kolob Terrace, the Sandstone Mountain area, view areas adjacent to the Zion National Park entrance corridor, and many views from the St. George area. Major modifications could occur to landscapes on Sand Mountain, Little Creek Mountain, east face of the Apex Slope, Castle Cliff Wash area, and Tobin Bench.

2. The perspective of the VRM program in the DRA would be expanded to include nonsurface disturbing actions such as land tenure adjustments. Landscapes with high scenic quality and sensitivity are important components of the recreation and visual resource base of the DRA. Visual and recreational considerations will be incorporated in the analysis of nonsurface disturbing management proposals for areas with A and B scenic quality and high visual sensitivity.

3. Designate 5,455 acres of the south escarpment of Red Mountain and the west wall of Snow Canyon as the Red Mountain Face Visual ACEC and assign a VRM I class. The ACEC is a prominent landmark visible from the St. George urban. The ACEC is the single most important BLM scenic feature in the urban setting. It is also an integral part of the Snow Canyon State Park landscape. The ACEC satisfies the 8410 manual criteria of Class A scenic quality and as a feature unique to the Basin and Range - Colorado Plateau Transition Zone.

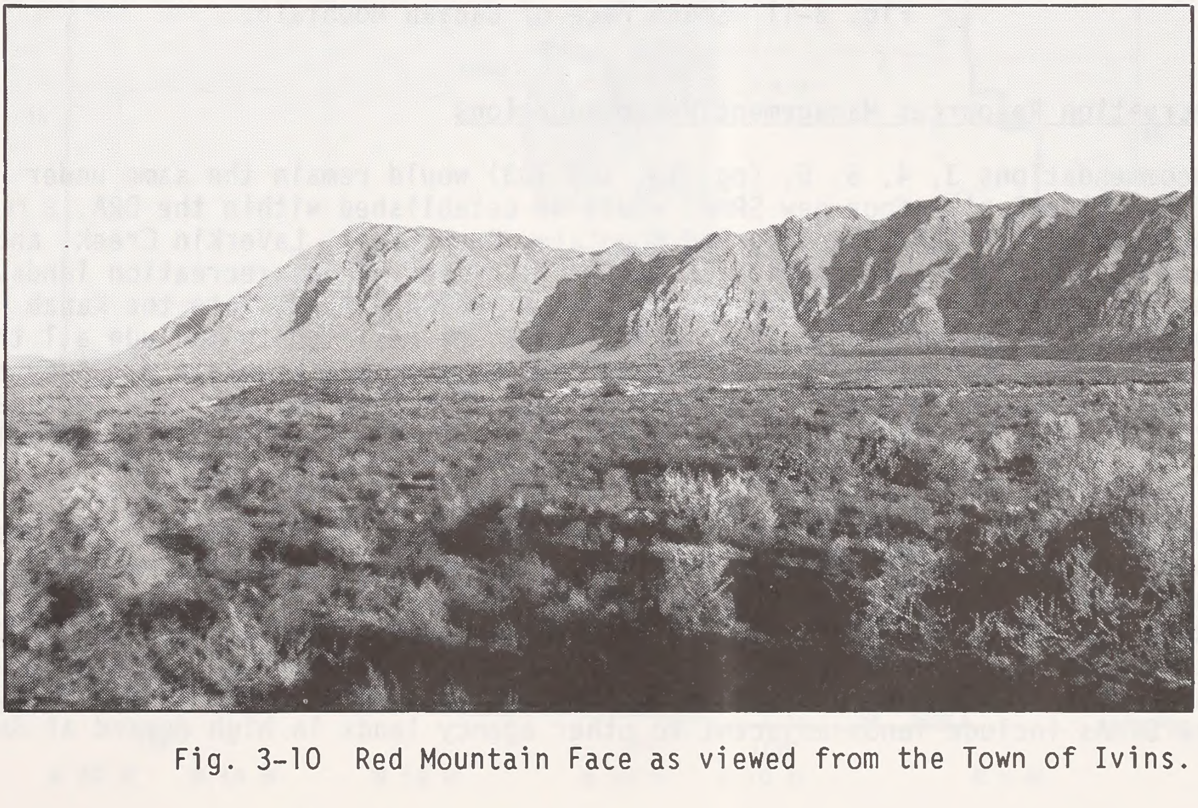


Fig. 3-10 Red Mountain Face as viewed from the Town of Ivins.

4. Designate 3,254 acres of the south escarpment of Canaan Mountain and the south face of Smithsonian Butte as a Canaan Mountain Visual ACEC and assign a VRM Class I. This area meets the two ACEC recommendation criteria set forth in BLM Manual 8410. The area is scenic quality A. The Canaan Mountain landscape is unique to the Colorado Plateau physiographic province.

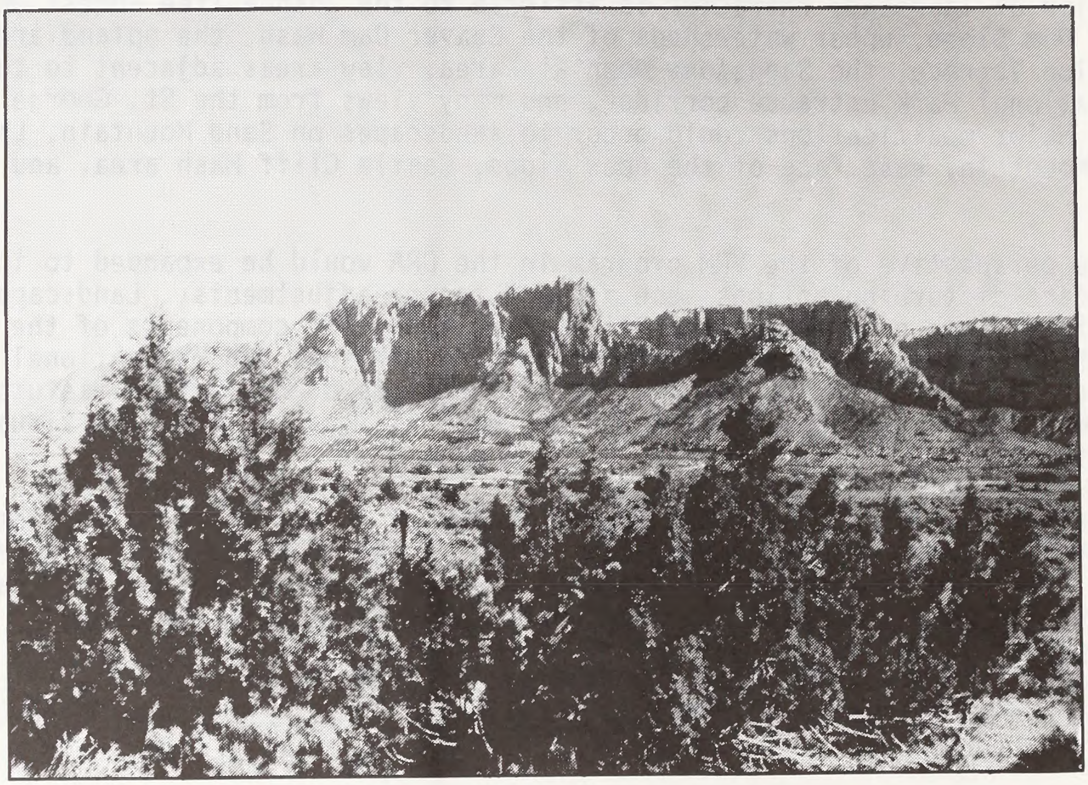


Fig. 3-11 South Face of Canaan Mountain.

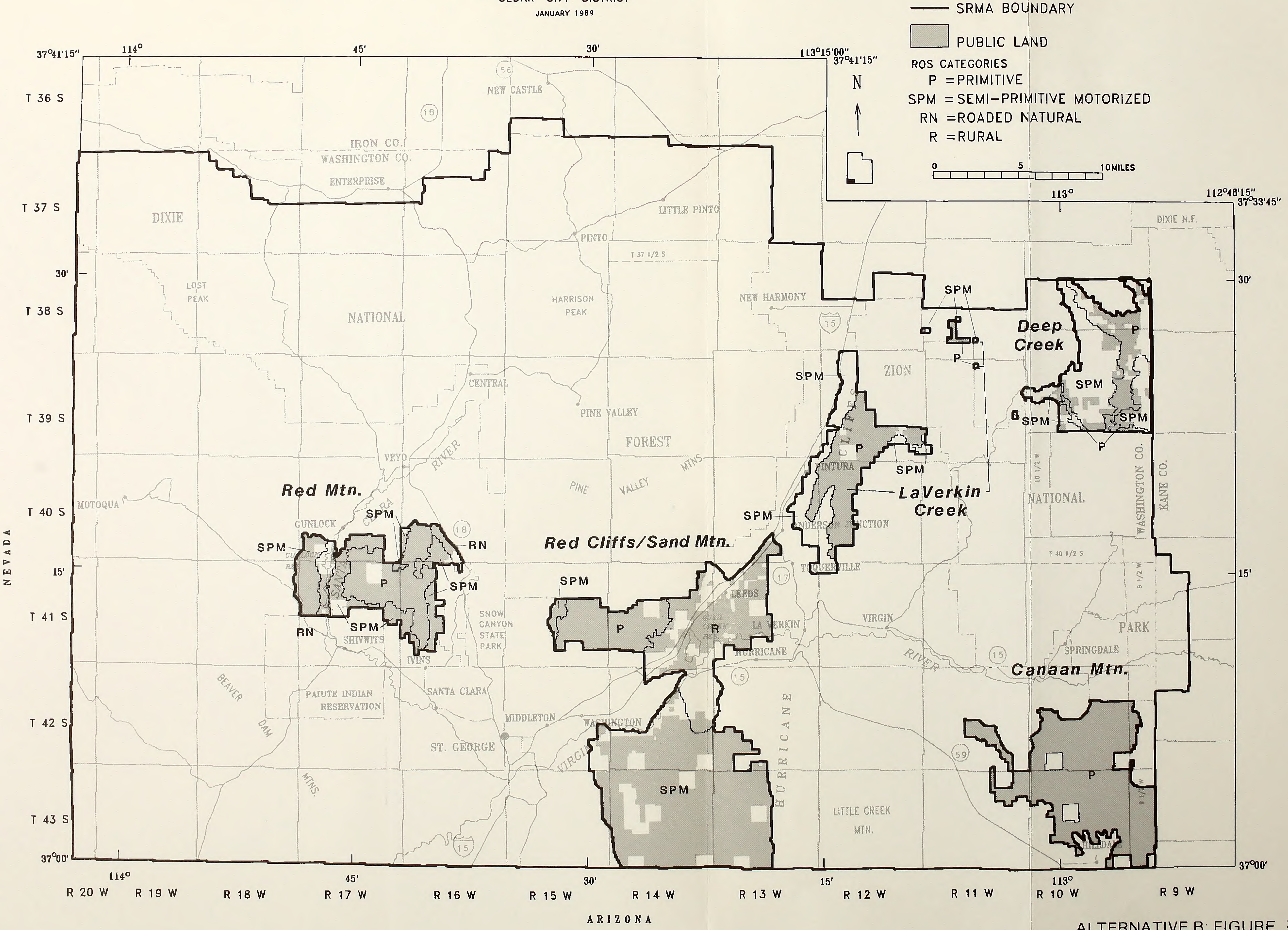
Recreation Resources Management Recommendations

Recommendations 3, 4, 5, 6, (pg. 101 and 103) would remain the same under Alternative B plus four new SRMAs would be established within the DRA. Included within the SRMAs are Red Mountain, Deep Creek, LaVerkin Creek, and Sand Mountain areas identified in the Virgin River MFP as recreation lands. The DRA portion of the Canaan Mountain SRMA (which extends into the Kanab Resource Area not included in this RMP) would be verified to include all the Canaan Mountain plateau and cliff face. The Beaver Dam Mountain Wilderness would be removed from SRMA status and placed in the ERMA. The ERMA includes 474,175 acres of BLM lands (Fig. 3-12 displays proposed SRMAs for Alternative B).

The SRMAs include most DRA lands of more than local recreation significance. The SRMAs also contain some of the lands that satisfy resident demand for those dispersed activities that are resource dependent. Lands outside of the SRMAs and in the ERMA also satisfy local demand for such resource dependent activities as four-wheel drive touring, backroads sightseeing, and ATV use. The Red Cliffs/Sand Mountain SRMA includes the Red Cliffs facility complex. The SRMAs include lands adjacent to other agency lands in high demand at Snow

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

SPECIAL RECREATION MANAGEMENT AREAS



ALTERNATIVE B: FIGURE 3-12

Canyon, Gunlock Reservoir, and Quail Creek Reservoir State Parks and in Zion National Park. Although most of the nonresident tourist sightseeing occurs on routes and "scenic byways" in the ERMA, major sightseeing attractions such as Canaan Mountain, Eagle Crags, Smithsonian Butte, the Leeds area Navajo sandstone, and Black Ridge are included in SRMAs.

1. The Red Cliffs/Sand Mountain SRMA combines the Quail Creek-Sandstone Mountain, Sand Mountain, and Cottonwood Canyon areas into a 65,650 area recreation management unit. The Red Cliffs recreation facility is included in the SRMA. This SRMA is assigned a Recreation Area Management Plan (RAMP) priority of one. The ROS zone management prescriptions for BLM lands within the SRMA are 9,600 acres Primitive (P), 42,490 acres Semi-Primitive Motorized (SPM), and 13,560 acres Rural (R). Within the Sandstone Mountain/Quail Creek portion of the Rural zone, private sector provision of opportunities would be by concession rather than disposal. Other land tenure adjustment needs in the SRMA would be determined in the RAMP.

2. Identify a 26,015 acres Deep Creek SRMA in the Deep Creek, Kolob Creek, Crystal Creek, and North Fork of the Virgin River drainages north of Zion National Park. The recreation management unit includes all of the scattered BLM lands on this portion of the Kolob terrace. The SRMA boundary includes sufficient non-BLM lands to form a logical management unit. Recreation activity planning for the SRMA will address critical access and acquisition needs. Because of the importance of land tenure adjustments, a priority of two is assigned to the RAMP. The ROS prescriptions for the BLM lands are 5,420 acres "P" and 3,535 acres "SPM". The ROS management prescriptions for the remainder of the SRMA are as indicated in the baseline ROS inventory.

3. The 27,425 acres Red Mountain/Santa Clara Creek SRMA includes important BLM recreation lands between Snow Canyon and Gunlock Reservoir State Parks. The ROS zone management prescriptions for BLM lands within the SRMA are 10,860 acres "P", 11,520 acres "SPM", and 1,630 acres Roaded Natural (RN). The "SPM" prescription is extended to the terminus of the existing way above Snow Canyon. Recreation land tenure adjustment needs such as easements, acquisition, and concessions versus disposal would be determined in the RAMP. The RAMP is assigned a priority of three. Recreation activity planning for the Santa Clara River area would take place under a coordinated resources planning effort for the river.

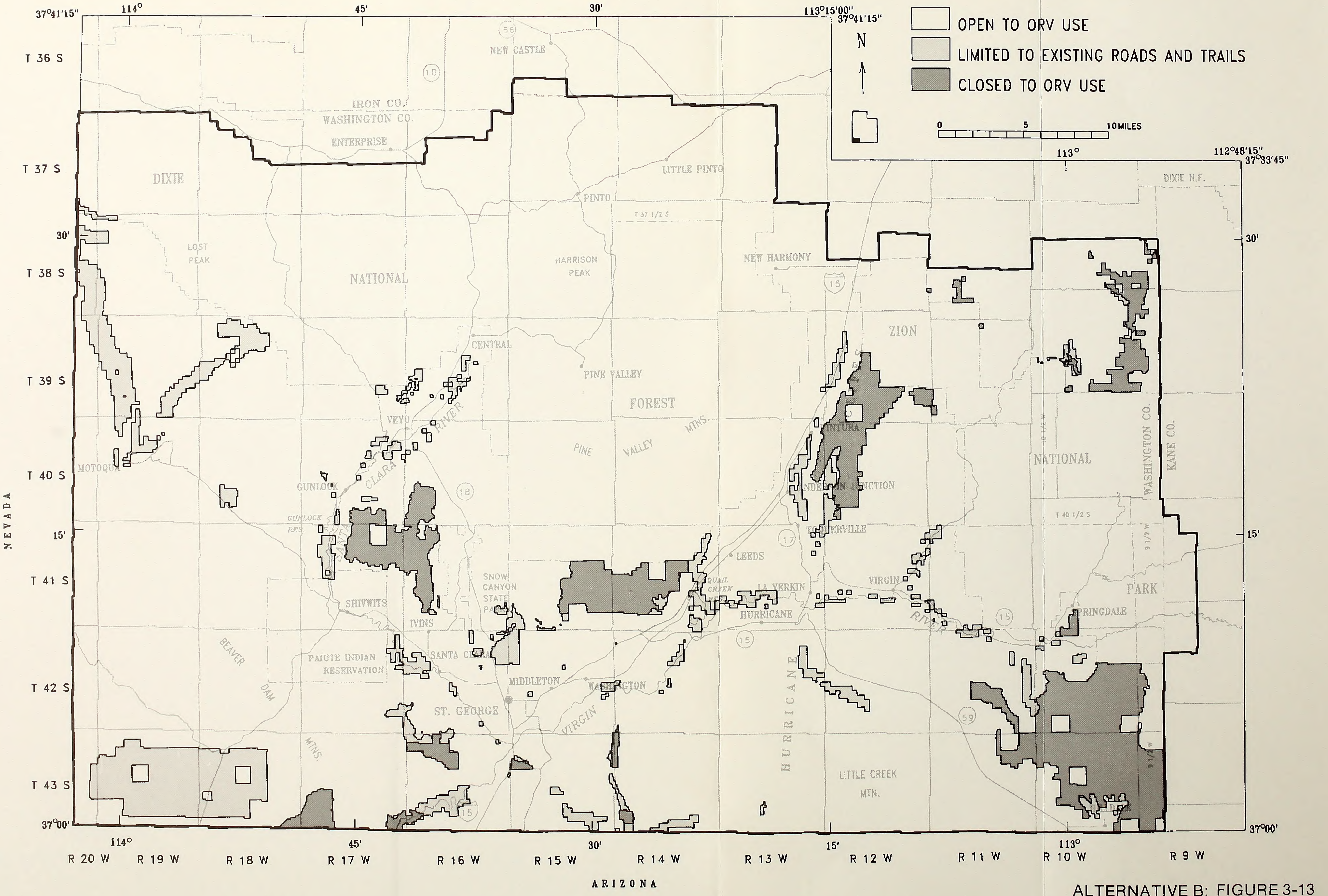
4. The LaVerkin Creek-Black Ridge SRMA includes all BLM lands in the LaVerkin Creek drainage on either side of the Kolob District of Zion National Park and in the Black Ridge area adjacent to Interstate 15. The recreation management unit is 23,335 acres in size. The ROS zone management prescriptions for BLM lands within the SRMA are 12,320 acres "P" and 8,860 acres "SPM". Any recreation land tenure adjustment needs would be determined in the RAMP. The Ramp is assigned a priority of four.

The Special Recreation Management areas are logical management units that provide ROS recreation activity and experience levels on a sustained yield basis. Under Alternative B, an NSO (Category 3 fluid minerals) would be established in all "P" class management zones. The SRMA lands with "P" management prescriptions are designated as closed to ORV use. The aggregate SRMA acreage under the NSO category and closed to ORV use is 72,355 acres. (Fig. 3-13 shows ORV designations for Alternative B.)

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

OFF-ROAD VEHICLE DESIGNATIONS

NOTE: Designations apply ONLY to land administered by the B.L.M. within the Dixie Resource Area.



ALTERNATIVE B: FIGURE 3-13

5. Manage Canaan Mountain DRA under ROS P prescription and extend existing ORV closure to include 33,500 acres.

6. If released from wilderness consideration, place ROS P management prescription on Section 202 (WSA) units except the Watchman unit. Under P prescription, designate areas as closed to ORV use (4,778 acres). Designate Watchman as closed to ORV (600 acres) because of scenic values.

7. Classify National Rivers Inventory (NRI) eligible rivers within Deep Creek WSA as "Wild". Initiate interim protection in accord with "Wild" classification.

Deep Creek and the North Fork of the Virgin River are Wild and Scenic Rivers Act "eligible" rivers deferred from RMP suitability recommendations to joint studies with Zion National Park.

Alternative B formally classifies DRA segments 1/4 mile in width from each bank as "wild" and provide interim protection support for the "wild" classification. Under "wild" interim protection, new road construction would be prohibited and the free-flowing condition of both streams would be maintained. The wild classifications are based on the condition of the streams and adjacent lands as they exist at the time of the RMP effort.

Soil-Water-Air-Riparian Recommendations

The management decisions outlined in Alternative A (1-5, pg. 103 and 104) are continued in this alternative. Other recommendations in this alternative were developed to understand and improve soil-water resources and to support other resource programs such as wildlife and recreation. Also, the recommendations are being made in an attempt to solve soil-water issues and management concerns (see pg. 6).

6. Obtain water rights or agreements for 59.7 miles on the following stream segments (Table 3-4, Fig. 3-14):

Table 3-4

Instream Flow Needs

Stream Segment	Miles	Flow Dependent Resource Values
East Fork Beaver Dam Wash T. 40 S, R. 19 W., SLB&M Sections 9 & 10	1.3	Riparian vegetation, non-game fisheries, forage production & watering, undeveloped recreation.
Santa Clara River South of Ivins	2.0	Riparian, vegetation, unconfined recreation, non-game fisheries, forage production and watering.
Santa Clara River Gunlock Reservoir to Paiute Reservation	3.2	Riparian, vegetation, potential game fisheries, unconfined recreation, forage production and watering.

Table 3-4

Instream Flow Needs (cont.)

Stream Segment	Miles	Flow Dependent Resource Values
Santa Clara Baker Dam South to Private Land	1.0	Cold water fisheries, riparian vegetation, recreation, wildlife, forage and watering.
West Fork Beaver Dam Wash Headwaters to private land north of Motoqua	12.7	Game fisheries, riparian vegetation, forage production and watering, undeveloped recreation.
Quail Creek U. S. Forest boundary to private land	1.0	Developed recreation area, riparian vegetation, wildlife forage and watering, non-game fisheries
North Creek T. 41 S., R. 11 W., SLB&M Section 6: private land	1.5	Riparian vegetation, undeveloped recreation, non-game fisheries, wildlife forage and watering.
LaVerkin Creek Private land near Toquerville to Zion National Park boundary	13.0	Non-game fisheries, riparian vegetation, forage production and watering, undeveloped recreation.
Deep Creek/Crystal Creek Zion National Park boundary north to private land	7.5	Potential wild and scenic river, game fisheries, forage production and watering, undeveloped
Kolob Creek North of Zion National Park	3.0	Coldwater fisheries, forage protection and watering, undeveloped recreation.
Virgin River Quail Creek Reservoir to confluence with Ash Creek	6.0	Woundfin minnow habitat, riparian vegetation, undeveloped recreation.
Virgin River Atkinville to State line	6.0	Wilderness, riparian vegetation, rafting/kayaking, Woundfin minnow habitat.
Ash Creek Ash Creek Reservoir to confluence with Virgin River	1.0	Riparian vegetation, non-game fisheries, wildlife and livestock forage.

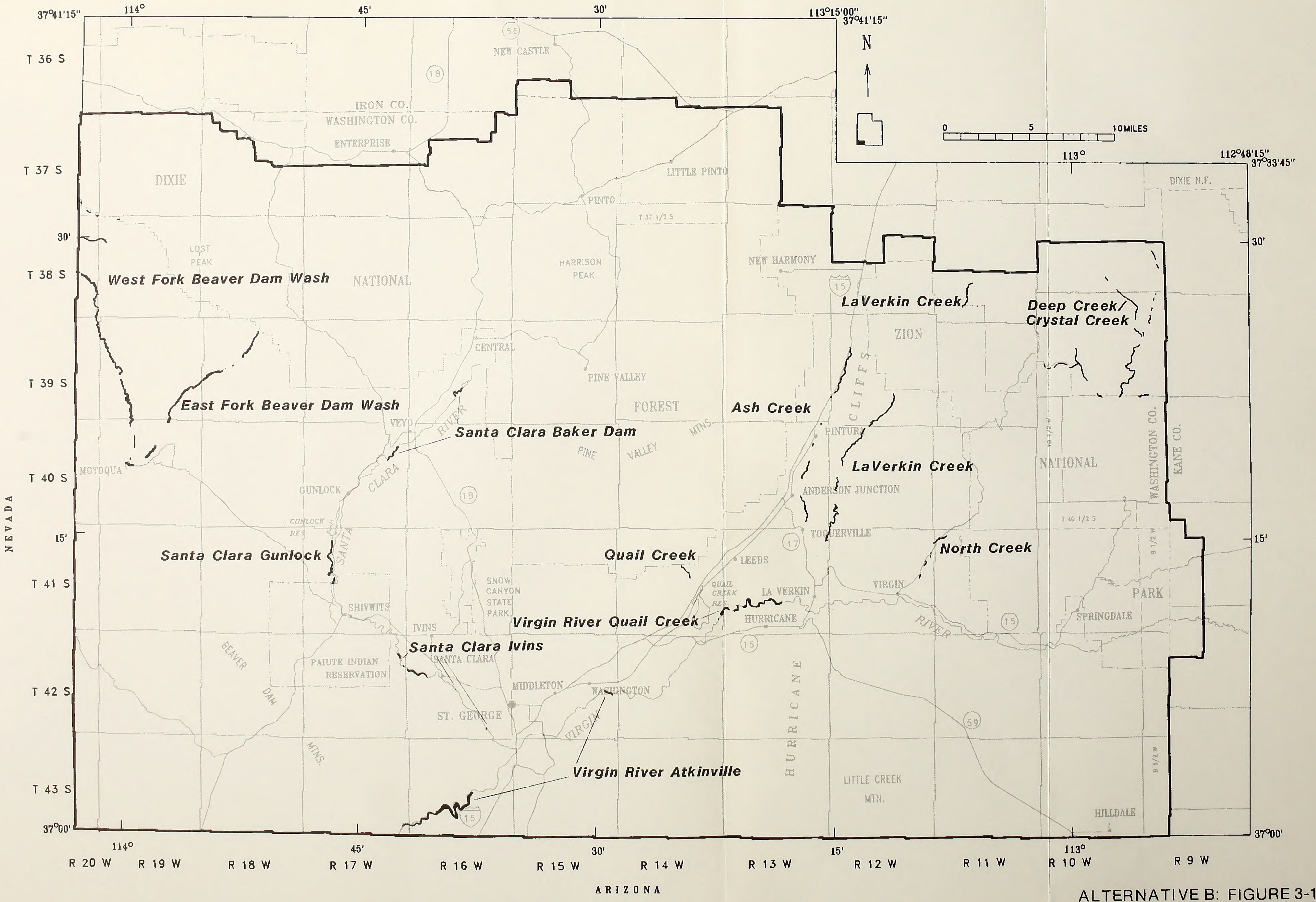
Implementation of this proposal would help assure important resource values are protected. These resources include recreation, aesthetics, wildlife and fisheries habitat, and riparian vegetation.

DIXIE RESOURCE AREA

CEDAR CITY DISTRICT

JANUARY 1989

INSTREAM FLOW NEEDS



ALTERNATIVE B: FIGURE 3-14

Instream flow is essential to the fisheries, some wildlife species, and riparian vegetation, and is an essential component of the recreational experience. Flow maintenance can be achieved through a number of ways. The method used on each stream segment will be determined at the activity planning level. A detailed water rights investigation on each segment is needed before a best strategy can be developed.

7.Establish management objectives to assure the Bureau is in compliance with Sec. 319 of the Clean Water Act. These include:

- Obtain reliable watershed condition.
- Initiate ecological site identification in conjunction with the Range and Wildlife programs.
- Establish a watershed monitoring system to ascertain whether or not surface management uses are compatible with site-specific tolerable soil loss values.
- Apply Best Management Practices to all actions occurring on Public Lands.
- Adjust livestock numbers in allotments where monitoring indicates soil protection objectives are not being met.

This proposal is intended to assure that the Bureau meets requirements contained in Section 319 of the Water Quality Act of 1987 in regards to non-point pollution. Basically, the Act requires that the Bureau manage the lands in such a way as to prevent water quality degradation. This is accomplished through the application of Best Management Practices (BMPs). BMPs include management actions such as: grazing systems and erosion control structures which are designed and implemented to control non-point pollution. BMPs that relate to surface disturbing activities such as mining operations or mineral material sales will be designed and implemented at the mine plan, Notice of Intent, and/or during the EA process. Design of BMPs dealing with other types of surface uses such as grazing, recreation and ORVs is dependent on knowing the current and potential watershed condition. There is currently a lack of reliable data to determine the status of watershed condition.

Develop a condition analysis system and to conduct future studies on all lands to determine current, acceptable and potential conditon. The method will be determined using ecological site information and through assessments of erosion, salt/seditment yield, water quality degradation and riparian area degradation. Lands in the Resource Area will be subdivided into watershed basins for analysis purposes. Each basin will be surveyed to determine current problems and their causes, identify potential future problems and propose BMPs to mitigate the problems.

Monitoring studies will be established to determine if objectives set in the condition analysis system and subsequent activity planning are being met through the management actions. Any necessary adjustments will be made after review of the monitoring studies.

ACEC designation on Red Bluff and Warner Ridge (Fig. 3-8, pg. 123 lands proposed for disposal actions not included). Acquire the two adjacent state sections near Red Bluff (see preliminary Management Prescriptions pg. 142).

The saline soils contained within the two proposed ACEC boundaries (and two adjacent State sections) represent the only management opportunities for

Colorado River salinity control in the DRA. The remaining saline soils occur on excessively steep slopes or cliff faces where any type of control measure albeit management and/or structural, is impractical.

This proposal represents a mitigative action since the soils are currently stable. However, if the cryptogamic cover is destroyed, the soils have a very high erosion potential. The design of this proposal (see Preliminary Prescriptions, pg. 142) is such that if implemented and enforced, it will prevent an estimated 886 tons of salt reaching the Colorado River system annually.

Classify and manage approximately seven miles of West Fork Beaver Dam Wash and the associated watershed (30,360 acres) as a water protection zone (Fig. 2-2, p. 16). Coordinate with the State of Utah to designate this stream as a anti-degradation segment.

The intent of this proposal is to protect the water quality of the West Fork Beaver Dam Wash so that its current and potential uses can be maintained. To accomplish this, the Bureau will work with Utah State Government to have the stream designated as a anti-degradation segment which will require any surface uses such as mineral exploration or development actions to be mitigated through application of BMPs. ORV use within the watershed will be limited to existing roads and a one-mile-wide (half mile each side of center) NSO Fluid minerals designation will be placed on the stream.

10. Identify 42,380 acres of the Navajo Sandstone aquifer from Leeds south and west to the Ivins area and Water Canyon/Maxwell Canyon north of Hildale as municipal watersheds (Fig. 2-2, pg. 16). Restrict all uses in these areas that would degrade water quality.

This proposal is designed to assure the continued existence of high quality water within the Navajo Sandstone aquifer.

The surface area will be restricted from use as a hazardous material or sanitary land fill site. Fluid minerals exploration will be restricted by a special stipulation requiring casing the hole and by cement plugs preventing mixing of low quality water aquifers with the Navajo aquifer. An activity plan will be written on these areas in conjunction with local and state governments.

Riparian: Recommendations 1, 2, 3, from Alternative A ,pg. 103 and 104 will continue.

4. Acquire 2,825 acres of land which contain riparian resources (Fig. 2-3, pg. 18). Lands are listed in acquisition priority. The intent of this proposal is to acquire land to block up riparian areas where the Bureau is the major land owner and/or the riparian resources are of high public value for T&E species, water quality maintenance, wildlife habitat and recreation. Also of importance, acquisition of these lands will prevent urban type development. Any non-public lands occurring in an otherwise contiguous public lands segment will create management problems on the segment as a whole.

Virgin River Quail Creek to confluence with Ash Creek (800 acres)
Values: Outstanding recreational opportunities
Habitat for the Endangered Woundfin Minnow
Desert Tortoise Habitat
Riparian
Water Quality Maintenance
Cultural Resources

Virgin River at the Stateline (470 acres)
Wilderness Values
Riparian Vegetation
Rafting/Kayaking
Woundfin Minnow Habitat
Wildlife Habitat

Santa Clara River - Gunlock (45 acres)
Values: Recreational Opportunities
Riparian Area
Wildlife Habitat
Water Quality Maintenance

Santa Clara River - Land Hill (140 acres)
Values: Cultural resources
Recreational Opportunities
Virgin River Spindace (sensitive species)
Riparian Vegetation
Water Quality Concerns

West Fork Beaver Dam Wash (various locations 100 acres)
Values: Cold Water Fisheries
Water Quality Maintenance
Recreational Opportunities
Riparian Vegetation
Wildlife Habitat

East Fork Beaver Dam Wash (various locations 895 acres)
Non-Game Fisheries
Water Quality Maintenance
Recreational Opportunities
Riparian Vegetation
Wildlife Habitat

Gould Wash (30 acres)
Riparian Vegetation
Wildlife Habitat
Recreational Opportunities

LaVerkin Creek (345 acres)
Values: Wildlife Habitat
Virgin River Spinedace (sensetive species)
Water Quality Maintenance
Riparian Area
Recreation Use

Management of these lands when acquired, will be included in the site specific activity plans for the respective area.

5. ORV Designations in Riparian Areas.

All riparian areas in the DRA are closed or limited to ORV use consistent with other surface management objectives (see ORV designations Alternative B, Fig. 3-13, pg. 128).

The North Creek Riparian Demonstration Area should maintain road access.

Along the Virgin River and Santa Clara River use should be confined to existing roads.

Fort Pearce Wash should have annual seasonal ORV closure from April 1 to October 31.

The intent of this proposal is to prevent degradation of valuable riparian areas from ORV use, while providing limited access for high value recreation areas (hunting, camping, racing, picnicking) and administrative purposes.

6. Fluid mineral categories in riparian areas (Fig. 3-3, p. 109).

No surface occupancy stipulation of 1/4 mile wide each side of center line on all riparian areas except on the West Fork Beaver Dam Wash, which is 1/2 mile wide each center line. The purpose of this proposal is to provide a buffer zone in which to contain any materials produced as a by-product of exploration and later on in the development phase. The buffer is needed to protect the highly valuable riparian areas and the associated uses such as recreation, water quality maintenance, fisheries and wildlife habitat.

7. Establish four ACECs for protection of riparian habitat systems (Fig. 3-8, pg. 123):

Santa Clara River - Gunlock

Santa Clara River - Land Hill
Values associated with these two segments are the same as outlined under riparian Proposal 1.

Virgin River - Lower
Values: Habitat for the Endangered Woundfin Minnow
Cultural Resources
Riparian Vegetation
Recreational Opportunities
Wildlife Habitat
Water Quality Maintenance

Fort Pearce Wash/Warner Ridge
Values: Virgin River Spinedace (sensitive species)
Wildlife habitat
Water Quality Maintenance

Spotted Bat (sensitive species)
Recreational Opportunities
(see preliminary Management Prescriptions, pg. 141)

These four riparian areas represent the best habitat remaining on public land within the DRA. Establishment of ACECs on the four will call management attention, trigger 3809 regulations which require mining plans, regardless of size and provide funding. Detailed management prescriptions will be developed in the individual ACEC management plans. These areas contain good condition riparian vegetation and have important soil, water, cultural, wildlife, and endangered species values. If left unprotected, these areas would be vulnerable to increased resource abuse and damage as use of those areas increases as St. George growth expands.

8. Acquire a non-development easement on all non-public land from Quail Creek Reservoir to Washington Fields diversion (Fig. 3-7, p. 120).

This proposal would acquire a non-development easement on the lands contained within the 100-year floodplain. The easement would involve the purchase of a property right which would prevent further development, thus, maintaining the floodplain in a more natural condition.

The purpose of the proposal is to protect the habitat of the endangered woundfin minnow. This segment has been identified by the U. S. Fish and Wildlife Service as the best remaining woundfin habitat anywhere in its natural range. Even though the main reason is woundfin habitat, other reasons exist to obtain the easement. This stream segment is becoming increasingly popular for recreation uses such as walking, running, and wading. The floodplain has become a green belt where non-intensive recreation has become valuable. The floodplain has become valuable wildlife habitat for species to find cover and food in an urban setting. Also, the easement would prevent urbanization of the floodplain, which would reduce the risk for loss of human life and personal property damage from flooding.

Wildlife Recommendations

Recommendations 1, 2, 3, 4, from Alternative A, pg. 105 and 106 will continue.

5. Enhance all types of wildlife habitat where practical through acquisition and management of 5,270 acres:

Deep Creek drainage, Black Ridge, Red Mountain

Deep Creek acquisitions would provide an additional 5,030 acres of important deer and elk summer range and habitat for turkey, band-tailed pigeon, cougar, and trout. The Black Ridge acquisition would be 160 acres of critical deer winter range, while the Red Mountain acquisition would be 80 acres of bighorn sheep habitat. Acquisition of those lands would provide large blocks of public lands with improved management capabilities for wildlife, and would reduce or eliminate the possibility of unplanned developments on the private parcels which could adversely affect wildlife.

6. Protect 17,700 acres of critical big game range from oil and gas leasing through a category 2 seasonal stipulation (no leasing from Nov. 1 to April 15). A seasonal restriction on oil and gas activities would protect mule deer from unnecessary disturbances during the portion of the year when they are most vulnerable to stress. These lands would be open to oil and gas exploration and development from April 16 to October 31, when most deer have moved off the winter range.

7. ORVs will be limited to existing roads to prevent deterioration of wildlife and riparian habitat in the following areas: (27,400 acres).

> Santa Clara Creek between Gunlock Reservoir and Santa Clara, Washington allotment, Alger Hollow allotment, Red Cliffs allotment, Sandstone Mountain allotment, Yellow Knolls allotment.

Restricting vehicular travel to existing roads would prevent compaction and disturbances to vegetation and soils and unnecessary harassment of wildlife. These areas contain important habitat for several game and sensitive species including Gambel's quail, desert tortoise, and gila monster. The reptiles in particular would be very vulnerable to impacts from ORVs if their habitat remained unprotected. These areas are likely to receive increased ORV use in the future as St. George-Washington urban growth increases, unless ORV restrictions are imposed.

8. ORVs will be limited to existing roads and trails in Fort Pearce Wash between the Fort Pearce ruins and the Arizona state line from October 1 to March 31 and closed to ORVs between April 1 and Sept. 30. Limiting ORV use to existing roads would prevent unnecessary damage to riparian and wildlife habitat in the Fort Pearce Wash area. A spring-summer ORV closure would protect important wildlife habitat during the breeding period, particularly for the spotted bat which is limited in Utah to this location.

9. Livestock grazing systems and/or, categories will be adjusted on 36,325 acres where monitoring studies show that wildlife habitat is being adversely impacted by livestock grazing (Pintura, Washington, Minera Wash, Gunlock, Alger Hollow, Red Cliffs, and Yellow Knolls Allotments). The primary concern is with deer winter range and desert tortoise habitat. Additional monitoring studies will be conducted on those allotments and if habitat problems continue, then changes in livestock grazing management will be made. Those allotments are presently C or M category. They would be changed to I category and changes in grazing systems would be made, either season of use or combining of allotments to create pastures.

10. Develop 30 new wildlife waters to improve wildlife habitat. Most of these developments would be in areas presently without permanent water such as Canaan Mountain and would be constructed to benefit primarily deer, although numerous other wildlife would also benefit.

11. Complete transplant of 20-30 bighorn sheep on Red Mountain (20,000 acres) and 40-50 elk on Cedar Mountain (7,000 acres). Those transplants would supplement existing herds and would improve the genetic variability of those herds.

12. Describe ecological sites for program consistency. Ecological site descriptions would provide more detailed information on a given site such as forage production potential, vegetation composition, and erosion potential. This type of information would be useful for all natural resource programs.

13. Revise the Beaver Dam Slope HMP and develop one new HMP (West Zion). Beaver Dam Slope HMP has been fully implemented, so needs to be revised to incorporate recommendations and actions identified in this RMP. West Zion HMP needs to be developed to place under management of an HMP those 192,200 acres in eastern Washington County which are currently outside of existing HMP boundaries.

14. Utilize prescribed fire burning as a means of improving vegetative composition to benefit wildlife habitat. Planned burns could improve wildlife habitat conditions for big game species by removing undesirable vegetation or vegetation that is too tall for wildlife to utilize. Fire stimulates the growth of grasses, forbs and some shrubs by reducing plant density and competition. Grasses, forbs, and new shrub growth is preferred forage of big game animals.

Threatened and Endangered Animals Recommendations

Continue recommendations 1 and 2 from Alternative A, pg. 106.

3. Acquire 9,415 acres of state and private land which will benefit endangered and sensitive wildlife species:

North of St. George, Beaver Dam Slope

Acquisition of those lands would benefit desert tortoise and gila monster by eliminating inholdings of state and private land and placing large blocks of public land under one manager. All land in the Beaver Dam Slope tortoise critical habitat area would be public land administered by the BLM. Acquisition of those lands would also eliminate the possibility of unplanned development on those lands which could adversely affect the tortoise.

4. Where habitat conflicts arise among resource uses and T&E or sensitive animal species, preference will lean toward protection of T&E or sensitive species. This would ensure the protection of those species and their habitat and eliminate the need for a Section 7 consultation on those conflicts.

5. Oil and gas leasing category 2 stipulations (closed from April to Oct. 31) will be initiated on all tortoise habitat with a density exceeding 20 tortoises/square mile and the Federal Register listed critical habitat. A seasonal closure on oil and gas activities would protect tortoises and their habitat from disturbances associated with oil and gas development during the time of year when they are active. Oil and gas activities would still be allowed from November 1 to March 31 which is the time of year when tortoises are in their winter dens and not active.

6. Initiate predator control to favor desert tortoise on the Beaver Dam Slope critical habitat area. Predator control work would reduce the chance that tortoises would be killed or injured by predators and could aid in the recovery of the species.

7. Retain all T&E and sensitive species habitat in public ownership unless disposal can be shown to benefit the affected species (Section 7 consultation determination). Retaining these habitats in public ownership provides protection from impacts associated with land development. Disposal of T&E or sensitive habitat would occur only if better quality habitat could be acquired in exchange for marginal habitat, or if disposal was made to another federal or state agency or private organization whose primary function is to protect rare species and their habitats.

8. Establish four ACECs to benefit T&E species (Fig. 3-8, pg. 123):

> Woodbury Study Area, City Creek, Virgin River (Lower), Warner Ridge/Ft. Pearce
> (see preliminary Management Prescriptions pg. 142)

These areas contain some of the most important habitat for desert tortoise, woundfin, Virgin River chub, and spotted bat. Establishing ACECs would provide an additional level of protection for the habitats. Most of these areas are close to St. George urban area, and without protection, these areas would be vulnerable to impacts associated with urban expansion.

9. Livestock grazing systems and/or, categories will be adjusted on allotments where future monitoring studies show that T&E or sensitive species habitat are being adversely impacted by livestock grazing. Adjustments would include changing allotment category to I if presently a C or M category allotment, changing the season of use to avoid direct competition with a T&E species, or combining allotments to reduce grazing pressure on probelm allotments.

10. Locate instream flow requirements to benefit endangered and sensitive fish species on Virgin River, Santa Clara River, West Fork Beaver Dam Wash, East Fork Beaver Dam Wash, LaVerkin Creek, North Creek, Ash Creek and Deep Creek. Establishing instream flow requirements would ensure that water is available in the stream to meet the needs of the fish.

Threatened and Endangered Plant Recommendations

Continue recommendations 1 and 2 from Alternative A, pg. 106.

3. Designate 4,935 acres of dwarf bear claw poppy, Siler cactus plant habitat as category 3 (no surface occupancy) for oil and gas leasing. No surface occupancy for oil and gas would protect those plant habitats from surface disturbances associated with oil and gas development, since those plants are vulnerable to disturbance at any time of the year.

4. Maintain all dwarf bear claw poppy, Siler cactus habitat in public ownership unless disposal will benefit the species (Sec. 7 consultation determination). Retaining these habitats in public ownership provides protection from impacts associated with land development. Disposal of T&E plant habitat would occur only if better quality habitat could be acquired in exchange for marginal habitat, or if disposal was made to another federal or state agency or private organization whose primary function is to protect rare species and their habitats.

5. Restrict ORV use to that necessary for the protection of dwarf bear claw poppy, Siler cactus plant habitat. This ORV restriction would include the continuation of ORV closures on all major plant population areas. ORV use will be monitored at other "open" plant habitat areas, and if impacts warrant, these areas may be closed in the future as well.

6. Initiate a public education program concerning T&E species. This program would include information on the T&E species, their significance, and why they should be protected and would be distributed through newspaper articles, brochures, signs, and lectures. A primary focus of this program would be the schools and user groups of habitat areas.

7. Establish two ACECs to protect endangered plant habitat:

Red Bluff, Warner Ridge
(see preliminary Management Prescriptions pg. 142).

These ACECs would provide some protection for two of the largest populations of plants. Portions of these areas are presently closed to ORVs, and overall disturbances on these areas are minimal. The primary benefit of an ACEC on these areas would be to provide public awareness to these plants.

Dixie RMP ACEC
Preliminary Prescriptions
Prescriptions Common to All ACECs

- R/W Avoidance Areas
- No Land Disposals
- Triggers 3809 Regs, 5-acre threshold
- Mineral Material Restrictions
- Educational and/or Interpretative Initiatives

Alternative	ACEC	Values
B&C	Red Bluff - ORV closure - Acquire State Lands - Educational Initiative - NSO Oil & Gas - Develop Appropriate Compatible Uses	Endangered Plant Species Colorado River Salinity
B&C	Warner Ridge - ORV closure on sensitive soils - ORV seasonal limitation on Ft. Pearce Wash 4-1 to 9-30 - Limited to existing roads and trails 10-1 to 3-31 - Educational initiative - Oil & Gas Cat. 3 NSO - NSO Buffer 1/4 mile wide each side of stream channel center (1/2 mile wide total) - Develop appropriate compatible uses	Endangered Plant Species Colorado River Salinity Riparian Wildlife
B&C	Santa Clara - Gunlock - Obtain instream flow - Oil & Gas NSO Buffer 1/2 mile wide (1/4 each side of centerline) - ORVs limited to existing roads and trails - No woodcutting - No control of beavers - Develop coordinated management plan	Riparian, cultural, wildlife

Alternative	ACEC	Values
B&C	Santa Clara River - Landhill	
	- Obtain instream flow	Riparian, cultural, wildlife
	- Oil & Gas NSO Buffer 1/2 mile wide (1/4 each side of centerline)	
	- ORVs limited to existing roads and trails	
	- No woodcutting	
	- No control of beavers	
	- Develop coordinated management plan	
	- Nominate ACEC area as a National Historic Property (District)	
	- Protest City of Ivins or Santa Clara annexation	
B&C	Lower Virgin River	
	- Obtain instream flows	Endangered and sensitive fish species, cultural, wildlife, riparian
	- Oil & Gas Cat. 3 NSO 1/2 mile buffer	
	- ORV limited to existing roads and trails	
	- Coordinated resource management plan development	
B&C	Little Creek Mountain	Cultural
	- Recognition ACEC only	
B&C	Canaan Mountain	
	- VRM I Class	
	- ORV closure on primitive ROS designation	National scenic resource
	- Oil & Gas Cat. 3 NSO (alternative Cat. 4 closure)	
	- Designate community watershed in Squirrel, Short Creek, Maxwell and Water Canyon	
B	Desert Woodbury	
	- ORV limited to designated roads & trails	Threatened animal species, national landmark
	- Oil & Gas Cat. 3 NSO	
	- Mineral withdrawal	
	- Avoid surface disturbing projects	
	- Predator control	

Alternative	ACEC	Values
C	Beaver Dam Slope (includes Desert Woodbury) - ORV limited to existing roads & trails - Oil & Gas Cat. 3 NSO (or all mineral closure) - Withdrawal from mining law - Avoid surface disturbing projects - Acquire state and private lands - No predator control	Threatened animal species sensitive species, natural systems
B&C	Red Mountain Face - VRM I Class - ORV closure on ROS primitive class - Oil & Gas Cat. 3 NSO - Acquire State Land - Underground R/W only	Scenic value, compliments Snow Canyon State Park
B	City Creek - Oil & Gas Cat. 2 (4-1 to 10-31) - ORV limited to existing roads and trails - Research projects by permit only - Acquire State land	Sensitive species, watershed
C	City Creek - Oil & Gas Cat. 3 (or Category 4) - ORV limited to existing roads and trails - Research projects by permit only - Acquire State land	Sensitive species, watershed

ALTERNATIVE C

The Alternative C Management Plan map displays management decisions which would emphasize long-term retention and protection of public lands. There are 24,000 acres identified for disposal in Alternative B that would be retained in public ownership under this alternative because of critical resource values. The amount of acreage available for disposal would be greatly reduced. However, the dollar value of available exchange/sale land would be more than adequate to negotiate for identified acquisition lands. The designation of ACECs and mineral restrictions to protect important habitats would increase in acreage as would ORV limited areas. Right-of-way corridors and SRMAs would remain the same as Alternative B.

Visual Resource Management (VRM) Inventory Class III on the west half of the Resource Area would be upgraded to VRM II management objectives which would allow more surface protection discretion on the sensitive desert scenery. ORV "limited" zoning would also reflect this commitment to protecting the desert environment. Valid current management would continue.

Fluid Minerals Recommendations

The following fluid minerals leasing categories will be implemented under Alternative C (Fig. 3-15).

Category 1 - 421,300 acres (Open)

Category 2 - 56,300 acres (Open Special Stipulations)

Category 3 - 150,100 acres (Open No Surface Occupancy)

Category 4 - (22,635) acres (Wilderness Area) closed pending all mineral withdrawal prescription in Beaver Dam Slope ACEC (Fig. 3-16).

Restrictions are imposed by other resource values as follows:

a. Category 3 - NSO. All desert tortoise habitat with 20 tortoise or more per sq. mi. and designated (F&WS) critical habitat on Beaver Dam Slope.

b All bear claw poppy and Siler cactus plant T&E habitat in Category 3 - NSO.

c. All riparian areas in Category 3 with NSO buffer to protect riparian zone and aquatic areas as follows: One fourth (1/4) mile buffer each side of the channel on riparian areas except West Fork of Beaver Dam Wash which will be 1/2 mile wide on each side of the channel.

d. Special stipulations (Category 2) on all identified municipal watersheds and Navajo Sandstone acquifer.

e. Special stipulations (Category 2) on the Deep Creek and West Fork Beaver Dam Wash water protection zones.

f. All critical big game winter range in Category 2 with seasonal stipulation from November 1 through April 15. Exceptions may be granted when big game are not using covered areas.

g. All primitive zone (P) ROS classes external to WSA boundaries in Category 3 NSO. Establish NSO on WSA lands with P prescriptions if released from IMP.

h. Baker Dam and Red Cliffs developed recreation areas retain present Category 3 NSO.

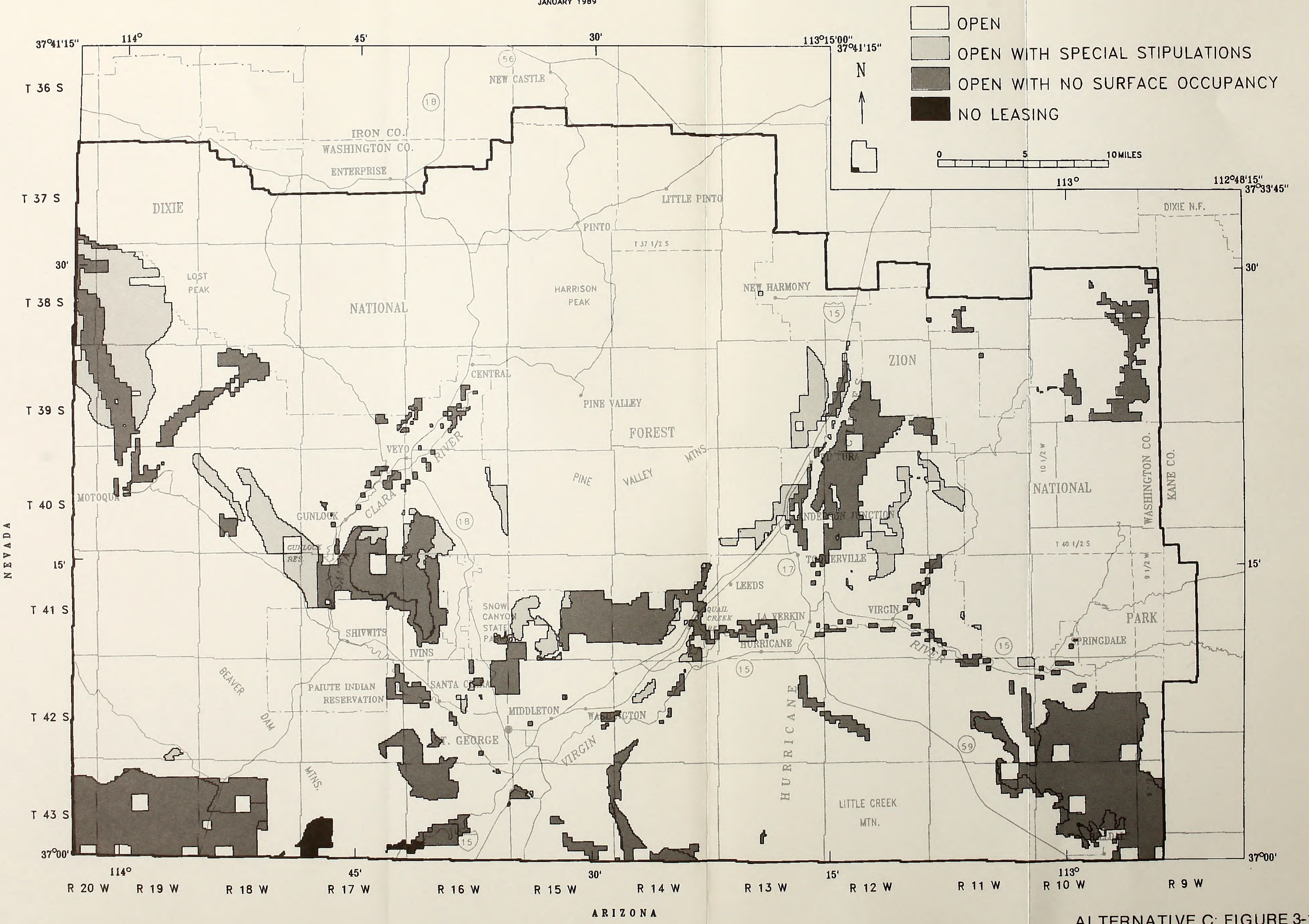
i. R&PPs and other small tract classifications in Category 2 with special stipulations to protect purpose of the classification.

j. Split estate leasing which fall into a restriction area will receive the same categories and stipulations as the public lands. Those which are on the edge of a restriction area will receive the least restriction category.

k. Initiate O&G Category 4 (closed) on Beaver Dam Slope ACEC.

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

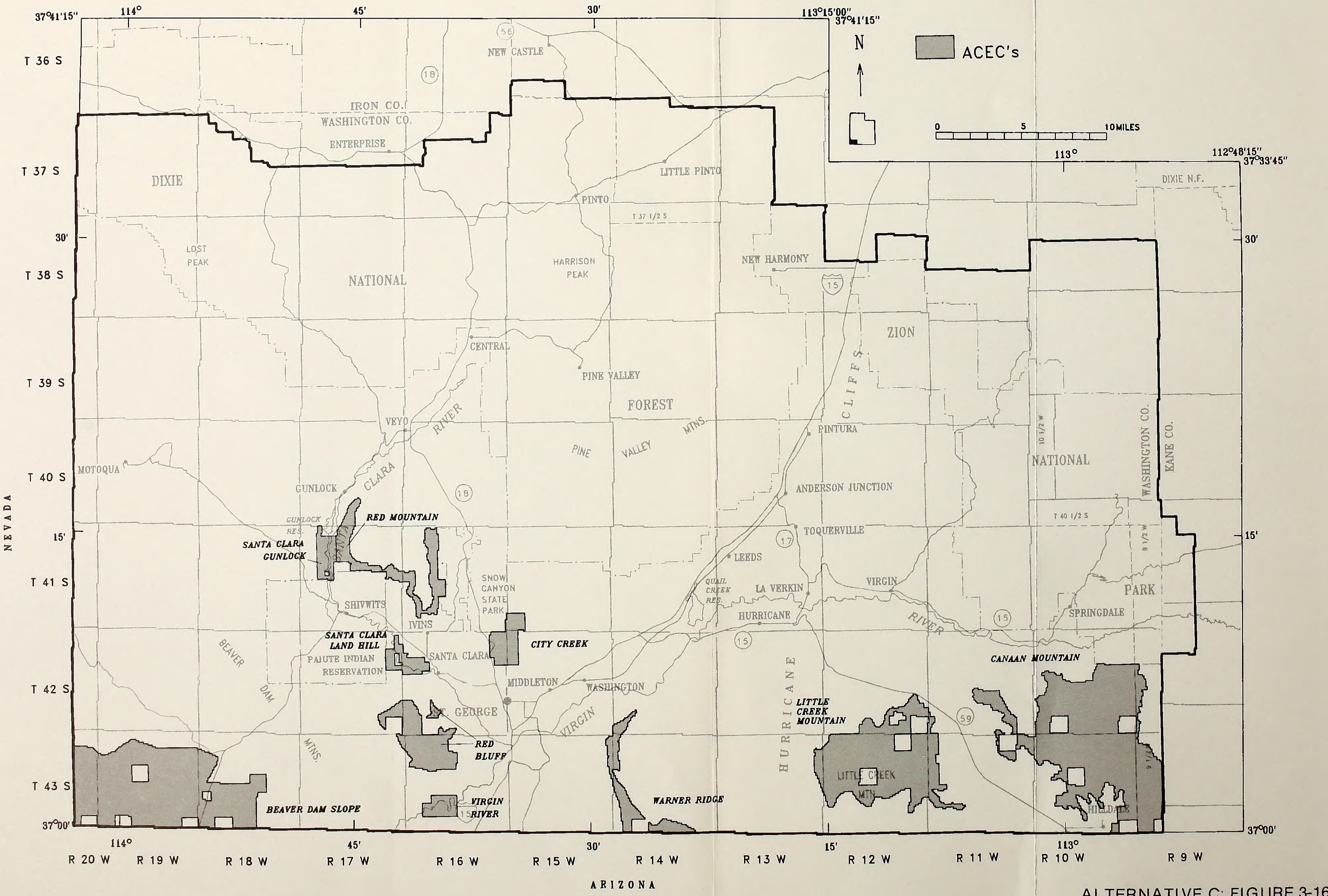
FLUID MINERALS LEASING CATEGORIES



ALTERNATIVE C: FIGURE 3-15

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)



ALTERNATIVE C: FIGURE 3-16

The following table displays the availability of lands for oil and gas leasing relative to resource potential.

	Low	Moderate	High	Total
Open	358,245	54,480	6,460	419,185
Open Special Stipulations	50,055	6,225	0	56,280
Open No Surface Occupancy	138,760	10,825	480	150,065
Closed Discretionary	0	0	0	0
Closed Non-Discretionary (Wilderness Area)	2,635	0	0	2,635

Mineral Materials Recommendations

1. The recommendation is the same as Alternative B (pg.108) but with more restricted acres and a closure in the Beaver Dam Slope ACEC. The Resource Area will remain open for mineral material sales with environmental assessment review except where limited by other restrictions pertaining to surface disturbances such as:

- ORV restrictions
- Primitive ROS classes
- Riparian zones
- Campgrounds
- T&E plant and animal habitat

Open	348,950 acres
Closed	82.100 acres
Restrictions	169,665 acres

Locatable Minerals Recommendations

1. Continue current management (pg. 93). Area remains open to mineral location according to 1872 Mining Law and applicable 3809 and 3802 regulations. Exempt is Beaver Dam Wilderness Area. A mineral withdrawal will be initiated on the Beaver Dam Slope ACEC for protection of T&E Desert Tortoise and fragile environment. (27,000 acres)

Withdrawal will be in effect on 37,100 acres.

Other surface management restrictions requiring plans of operation under 3809 regulations will be in effect on 120,300 acres.

Rights-of-Way Recommendations

1. Same as Alternative B recommendations 1-7 (pg. 110). However avoidance acreage increases significantly mostly due to increase in VRM II changes in Alternative C.

VRM II avoidance areas are 432,000
ROS privitive zone acres are 74,160.

Lands Recommendations

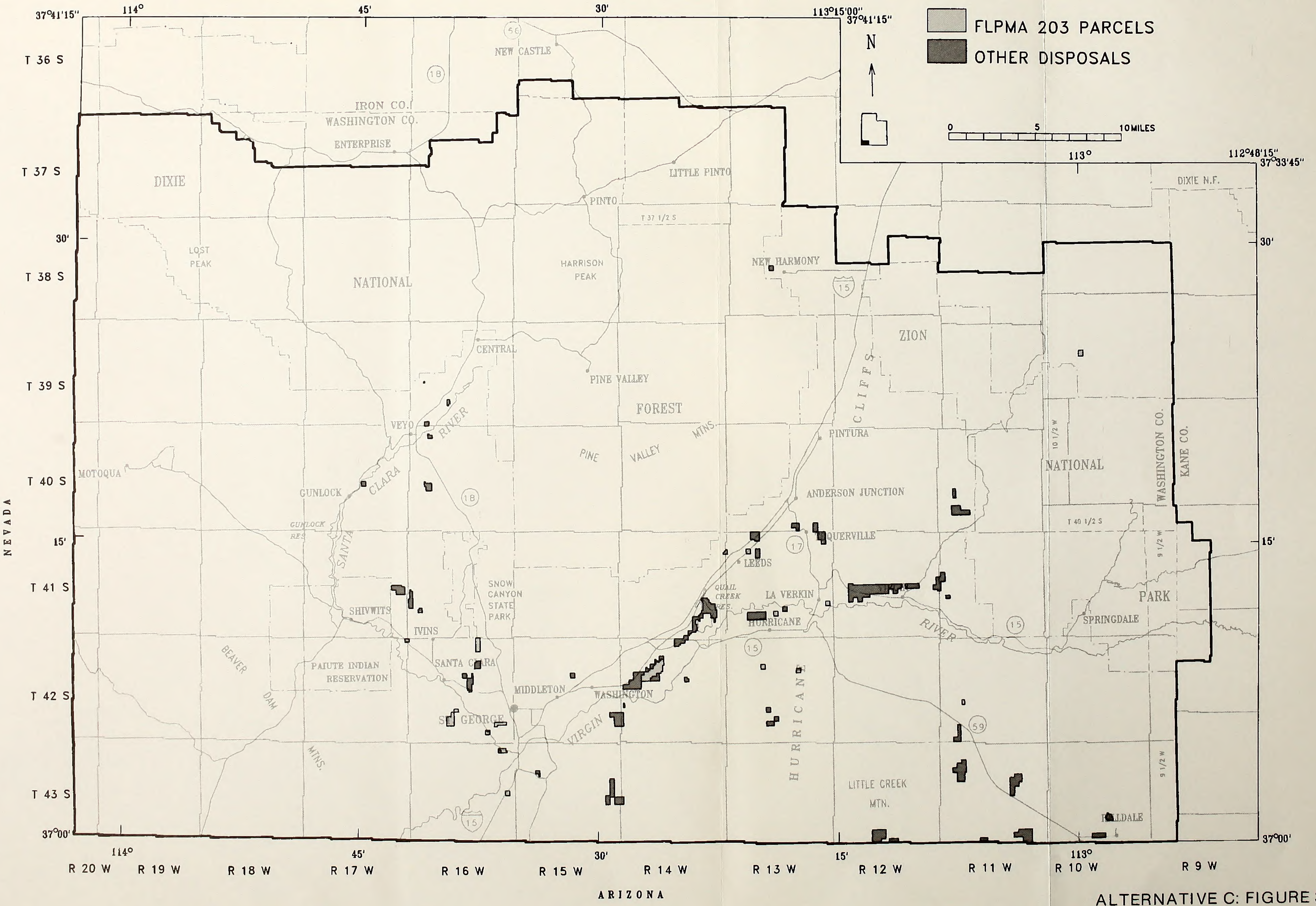
1. Opportunities for land disposal are 9,662 acres (Fig. 3-17, Table 3-5). This recommendation is similar to Alternative B (pg. 112) except there are 24,000 fewer acres identified for disposal and emphasis would be on the protection of important public resource values rather than land tenure adjustments. Most sales would not be considered for the first three years following completion of the plan. Emphasis during this period would be placed on land exchanges which would improve management by blocking ownership patterns and acquiring lands for the enhancement of other resource programs (Alternative C map).

2. Non-disposal will be in effect on 619,048 acres or 98.5 percent of the public land in the Resource Area.

Recommendations 3, 4, 5, 6, 7, are identical to Alternative B (pgs. 112 and 119).

DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

POTENTIAL LAND DISPOSAL



ALTERNATIVE C: FIGURE 3-17

Table 3-5

LAND DISPOSALS

Parcel No. [a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions [c]
3	5.00	x	
4	40.00		x
6	40.00	x	
9	32.50		x
10	40.00		x
13	119.28	x	
18	122.45	x	
19	25.00	x	
20	57.65	x	
24	40.00	x	
27a	440.00		x
30	280.00		x
33	160.00		x
36	80.00		x
37	160.00		x
40	38.39	x	
42	111.25		x
44	120.00		x
45	80.00		x
46	40.00		x
47	500.00	x	
48a	631.69		x
48c	197.90		x
50	40.00		x
52	168.40		x
54	120.00		x
55	80.00		x
56	206.63		x
57	44.58	x	
58	94.86		x
64	320.00		x

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-5 (cont.)

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
67	40.00		x
68	40.00	x	
69	40.00	x	
72	40.00	x	
73	40.00	x	
74	40.00		x
75	40.00		x
76	80.00		x
77	1120.00		x
78	120.00		x
79	40.00		x
82	80.46		x
83	76.31		x
84	80.00		x
85	240.00		x
86	40.00		x
90	40.00	x	
91	200.00		x
92	400.00		x
93	360.00		x
95	74.65		x
96	356.12		x
108	11.40	x	
109	40.00		x
110	185.02		x
111	13.37	x	
112	80.00		x
113	15.00		x
114	10.00		x
115	41.41		x
116	40.00		x

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Table 3-5 (cont.)

LAND DISPOSALS

Parcel No.[a]	Acres	Potentially Meets FLPMA Sale Criteria[b]	Meets FLPMA Criteria for Other Disposal Actions[c]
117	70.00		x
118	40.00		x
122	240.68		x
123	39.03	x	
124	200.00	x	
129	80.00		x
130	140.00		x
131	190.49		x
132	20.00		x
134	40.00	x	
136	142.02		x
	9,661.54		

[a] For legal description see Appendix Land Disposal Legal Descriptions Table.

[b] FLPMA Sale Criteria: Lands difficult and uneconomical to manage, lands acquired for specific purpose and no longer needed, disposal would serve important public objectives.

[c] Other disposal actions: State selections, quantity grants, exchanges, R&PPs, agricultural entries.

Note: All parcels meeting sale criteria also meet other disposal criteria.

Withdrawal and Classification Recommendations

1. Continue current management (pg. 98).

Approximately 32,000 acres are recommended for withdrawal. This is an increase of 24,000 acres over Alternative B and is for the protection of tortoise habitat on the Beaver Dam Slope.

Forestry Recommendations

Recommendations for forestry in this alternative are identical to those listed in Alternative B for Forestry (pgs. 119 and 121).

Grazing Management Recommendations

Recommendations for grazing management in this alternative are identical to those listed in Alternative B for Grazing Management (pgs. 121 and 122).

Cultural Resources Recommendations

1. Recommendations are the same as for Alternative B 1 and 2, (pg. 122).

Wilderness Recommendations

1. Manage Beaver Dam Mountain Wilderness Area according to 43 CFR 8560 regulations and Wilderness Management Policy.

Visual Resources

Under Alternative C, surface management goals for the DRA landscape other than the Beaver Dam Mountains Wilderness are based on the overall quality of the landscape. The recommendations from Alternative B (pgs. 122, 124) carry into Alternative C with the following changes:

1. The VRM Class II objective of retaining the existing character of the landscape is assigned to the 465,215 acres in 62 units with inventoried relative value ratings of II and III. As in Alternative B, major modification of the existing landscape character (VRM IV Objective) would be allowed on the 159,570 acres of landscape with a relative value rating of IV.

Alternative C elevates the value of the visual resource and responds to the overall high value of the DRA landscape. In the western desert and mountain portions of the DRA, on the Kolob Terrace, in view areas north of Utah Highway 9, and in certain areas surrounding the St. George urban area, the management objective would be to retain the landscape character and not allow surface modifications that would attract the attention of the casual viewer (Fig. 3-18 displays Alt. C VRM classes.)

   a. Assign VRM Class I objectives to three units (approximately 40,420 acres) with relative value ratings of I (two scenic ACECs and the Wilderness Area).

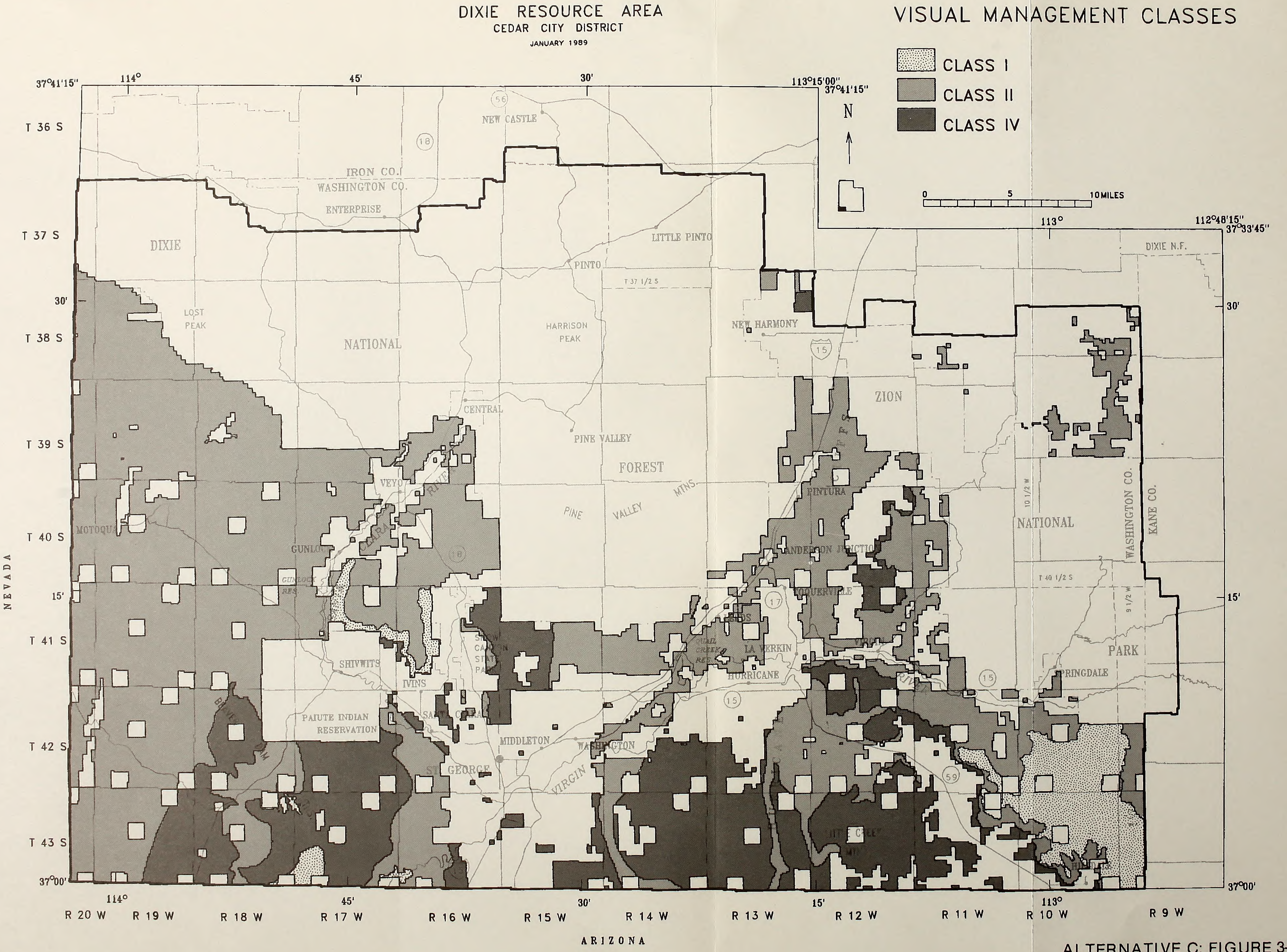
   b. Assign VRM Class II objective to 62 units (465,215 acres) with relative value ratings of II and III.

   c. Assign VRM Class IV objectives to 18 units (159,570 acres) with relative value ratings of IV.

2. Increase the Canaan Mountain Visual ACEC to 31,741 acres and assign a VRM I Class. On the plateau top, the ACEC designation would be extended to include the Lower Mountain, South Mountain, the main Canaan Mountain, and all of Smithsonian Butte. The north-facing escarpments and canyons across the Virgin River from Zion National Park including the Eagle Crags, Shunes Creek, South Creek canyons would receive ACEC status. The enlarged area is rated as Class A scenic quality. The ACEC possesses unique landscapes that are not found in adjacent areas of Zion National Park.

Recreation Resources Management Recommendations

All recommendations described in Alternative B (pgs. 126, 127) for Recreation Resources Management are the same in Alternative C except for the ORV zoning which has substantially changed (ORV Map in map pocket). The ORV changes



DIXIE RESOURCE AREA
CEDAR CITY DISTRICT
JANUARY 1989

VISUAL MANAGEMENT CLASSES

- ░ CLASS I
- ▒ CLASS II
- ▓ CLASS IV

ALTERNATIVE C: FIGURE 3-18

reflect the need to accommodate "open" riding areas in relatively close proximity to population centers while protecting sensitive environments from disturbances associated with off-road vehicle use.

Soil-Water-Air-Riparian Recommendations

All actions contained in the Soil, Water, Air, and Riparian section in Alternative B (pgs. 130-137) are the same except the size of the proposed ACEC's on Red Bluff, Santa Clara Land Hill, and Virgin River, which have been increased by 1,260 acres, 220 acres, and 755 acres respectively over Alternative B (Fig. 3-16, pg. 148).

Wildlife Recommendations

Recommendations for Wildlife in this alternative are identical to those listed in Alternative B for Wildlife (pg. 137-139).

Threatened and Endangered Animals Recommendations

Recommendations 1, 2, 3, 4, 7, 8, 9, 10 from Alternative B (pgs. 139-140) are identical for Alternative C. In addition, the following recommendations have been developed.

1. A mineral withdrawal will be initiated on the Beaver Dam Slope desert tortoise critical habitat area. This mineral withdrawal would protect all critical tortoise habitat from disturbances associated with potential mineral development on the Beaver Dam Slope.

2. Oil and gas leasing category 3 (no surface occupancy) will be initiated on all selected tortoise habitat with a density exceeding 20 tortoises/square mile and the proposed Beaver Dam Slope ACEC. The ACEC can be considered for Category 4 (closed) and withdrawal for fluid mineral leasing. No surface occupancy for oil and gas would protect all critical and high density tortoise habitat from surface disturbances associated with oil and gas development. This protection would include not only the animals, but their dens as well and would prevent the possible loss of tortoises inside their dens. A Category 4 closure would provide slightly more protection by eliminating any possibility of lease development in the future.

3. Establish four ACECs to benefit T&E species:

> Beaver Dam Slope (critical habitat area), City Creek, Virgin River (Lower), Warner Ridge/Fort Pearce.

Three of these ACECs are identical to those listed in Alternative B, but the Beaver Dam Slope ACEC represents an increase of 23,730 acres from the Woodbury ACEC proposal of Alternative B. This larger ACEC would provide additional public awareness for the desert tortoise and provide some additional protection to tortoise habitat south of the critical habitat area.

4. ORVs will be limited to existing roads and trails within the following allotments to protect sensitive desert tortoise habitat:

> Alger Hollow, Washington, Yellow Knolls, Red Cliffs, Sandstone Mountain, Beaver Dam Slope and Castle Cliffs.

Restricting vehicles to existing roads and trails would protect tortoise habitat from compaction or disturbance to vegetation and soils or death or injury to tortoises from being run over. Since these areas are close to St. George, they are likely to receive increased ORV use in the future as St. George grows, unless ORV restrictions are imposed.

Threatened and Endangered Plant Recommendations

Recommendations for T&E plants in this alternative are identical to those listed in Alternative B for T&E plants (pgs. 140, 141).

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter describes the anticipated environmental consequences of the three alternatives described in the previous chapter. The discussion is organized by alternative and resource program. None of the alternatives impact air quality, climate, fire, or hazardous materials. The impacts on soils, vegetation, water and wildlife are analyzed under the program managing those resources.

Environmental consequences were first determined through interdisciplinary analysis by the Bureau planning team. Every resource management recommendation of an alternative was analyzed against each resource or program environment in order to determine whether there is environmental interaction and the degree of that interaction. An "O" was shown if the degree of that judged was negligible. If interdisciplinary professional judgment identified a consequence quantified as less than one percent of the resource base, the impact received a Low "L" rating. If the consequence could be quantified as up to ten percent of the resource, (for example: recommended withdrawal of 100 acres of high mineral potential from a total of 1,000 acres of high mineral potential), if there were several low cumulative impacts, or if professional judgment indicated moderate, the impact received a Moderate "M" rating. If professional judgments of impacts were high and/or quantifiable to acreage representing over ten percent of the resource base (or small but significant acreage such as any T&E habitat) or cumulative consequences were judged to be high, it received a High "H" rating. The discussion in this chapter focuses on the aggregate consequences to resources from the recommendations.

The following terms are used to describe impacts expected from the alternatives.

Short-Term - Impacts of no more than five years duration.

Long-Term - Impacts which would last up to 20 years.

Irreversible - An impact representing the permanent commitment of a resource; irreversible actions, once taken, would cause a permanent change. A return to the current situation would be impossible or technically or economically infeasible.

Irretrievable - A permanent loss of resources that would be impossible or technically or economically unfeasible to replace.

Unavoidable adverse and beneficial impacts, short-term use and maintenance, enhancement of long-term productivity, and irreversible and irretrievable commitments of resources are discussed throughout this chapter.

The summary at the end of the consequence analysis for each alternative addresses the cumulative consequences of all impacts; any irretrievable and irreversible committment of resources; how the alternative resolves the issues and management concerns; and the necessary mitigating measures.

Alternative A Impacts

Fluid Minerals

The cumulative impacts from fluid mineral leasing and development in the DRA are considered short-term low (less than one percent of the DRA). This conclusion is based on the current assumption that fluid mineral exploration will continue at about the same rate for the duration of this plan (2010) and that no new fields will be discovered in the next 20 years. A reasonable development scenerio estimates 220 acres of disturbances.

Existing fluid minerals categories for Alternative A are:

Category 1 Open	Category 2 Special Stipulations	Category 3 No Surface Occupancy	Category 4 Closed
514,510	26,700	40,585	45,880

A total of 1,160 acres of the medium and high potential fluids mineral zone is restricted by Category 3 designation. This designation represents a moderate negative impact to the fluids program as it involves 1.5 percent of the potential zone.

Further analysis identifies low negative impacts to the fluids program on areas located outside the potential zone (Fig. 2-4, p. 30). Seasonal stipulations have been placed on 26,700 acres of the Beaver Dam Slope. This stipulation has low negative impacts to exploration because it restricts actions only during a few months of the year. A NSO, fluid leasing category 3 applies to 20,795 acres at various locations throughout the Resource Area. NSO requires exploration and development be conducted by slant drilling resulting in high costs.

A total of 44,995 acres are closed to leasing. Closure is due to wilderness, frail watershed and recreation uses. Closure of areas prevents exploration which is a major impact preventing domestic oil discovery. However, in the DRA the closures are on areas with low potential for fluid minerals. Exploration activity in the Resource Area has been low, even during the time of high oil and gas prices in the early 1980s. This same condition is expected to remain the same for the life of the plan.

Even though a moderate negative impact occurs as a result of the Category 3 designation, the overall impact to the fluids program is considered low. This is because of the low historical rates of exploration and development. (See Development Scenario, pg. 25).

Minerals (Saleable)

The current management has a negligible impact to the mineral materials program. Established community pits are meeting the demand. This accommodation has been of moderate significant benefit to the growth of St.

George. Fill material has been used for shopping centers, schools, and subdivisions and much public landscaping stone has come from BLM.

There are currently three established community pits of less than five acres each within the Resource Area supplying sand, gravel, and cinders.

The environmental analysis process prior to authorizing mineral sales ensures adequate safeguards against environmental degradation. The authorized BLM official has full discretion whether or not a sale will occur.

Mineral sales involving equipment are usually restricted from riparian areas, T&E and sensitive species habitat, highly visible areas and are "cleared" for archaeological values.

Material sales for small quantities of picture stone and petrified wood not involving surface disturbance are usually authorized whereever the product occurs at the judgment of the BLM official.

Minerals (Locatable)

In this alternative, most public land in the Resource Area is open for mineral location and development. There are presently 23,000 claims covering approximately 460,000 acres. A total of 293,540 acres (47 percent) of the DRA has been inventoried as having medium or high potential for locatable minerals. The main locatables are gold, silver, gypsum, gallium, germanium and uranium.

Under this alternative 8,843 acres are withdrawn from mineral location. The areas are under water reservoir withdrawals, R&PP leases and designated wilderness. There is a total of 56,030 acres of threatened desert tortoise habitat on the Beaver Dam Slope, 3,185 acres of endangered plant habitat in the Red Bluff area and 37,685 acres of ORV closure areas (that require application of 3809 regulations). These 3809 regulations require mine plans on operations of less than five acres and that undue and unnecessary degradation of resources does not occur as a result of mining. The mine plan stipulates mitigating measures specific for each operations.

Impact of Alternative A to the mineral locatable program is negligible. Mining exploration and development would still occur. However, it would be more time consuming and costly to meet the five-acre mine plan requirements.

The continuation of current management would probably lead to a situation where the high beneficial economic/social consequences of a mining operation under the 1872 Mining Law would confront the high beneficial social consequences of T&E habitat protection mandated by the Endangered Species Act.

Rights-of-Way

Right-of-way corridors would not be designated and the existing defacto routes formed by the IPP (500 kv) and Navajo McCullough (500 kv) transmission lines would be "preferred" routes for any new interstate rights-of-way. Preferred routes are not officially designated and are subject to change. Therefore, there is no assurance that routes will not change which would result in new scenic intrusions. Major new intrusions are considered a long-term high negative consequence to visual quality because they change the landscape. Alternative A does not meet the planning needs of the utility industry because interstate utilities would continue to be required to analyze impacts of alternative routes and this is considered a short-term high negative economic impact. Alternative A would not accommodate the planning needs of adjacent states and the long range utility planning efforts to link established rights-of-way for interstate utilities into a corridor network. The lack of an interstate corridor network is considered a long-term high negative impact for the utility industry and all agencies involved in rights-of-way permitting.

During the past 15 years, 60 miles of rights-of-way have been granted for major interstate utilities within existing defacto corridors. There are 90 miles of planned interstate utilities for which statements of interest have been received or which have been identified for future construction by companies or municipalities. Based on these figures it is estimated that future demand for the life of this plan will continue at approximately the same, or a slightly higher rate, than during the MFP period.

Rights-of-way for smaller distribution facilities would continue on a case-by-case basis. Some environmental values are effectively protected through mitigation measures. However, the scenery is usually negatively impacted by any type of above ground intrusions and total rehabilitation of surface disturbances in this desert environment is not successful. Issue 1(f) pg. 6 will not be resolved and the long-term highly negative impacts to the scenery will continue. Utility distribution is necessary for community development and it cannot always be predicted where rights-of-way will be needed. Under current management the authorized BLM official has reasonable discretion to reject particular routes to protect important environmental values. But right-of-way applicants have no designated environmental avoidance areas to plan around. This results in extra expense for them in surveying alternative routes and is considered a short-term high negative economic impact.

The issuance of any right-of-way is generally considered an irretrievable committment of resources. Once a utility is in place it usually remains permanent. Utility rights-of-ways are generally granted for 30 years.

There are 97 miles of rights-of-way that have been granted for distribution facilities since the MFP. Growth rate in Washington County for the 15 year period since the MFP from 1970 to 1985 was 10.8 percent. Projection figures indicate a slower growth rate of 2.2 percent from 1990 to the year 2010. Based on projected growth rate, which is an indication of demand, it is estimated that future demand for the life of this plan will be slower than during the period of the MFP and an estimated 50 miles of distribution facility rights-of-way will be needed. Continuation of current management would result in cumulative high negative consequences. Particularly to scenic values and the economic costs incurred in rights-of-ways processing.

Lands

There are 14,409 acres of public land identified as available for disposal and no parcel specific acres identified for acquisition under this recommendation. Some of these disposal parcels (1,696 acres) potentially meet FLPMA sale criteria, but most disposals occur by exchange, R&PP lease, or grants to the state. Parcels qualifying for sale may also be exchanged or otherwise disposed.

Land disposal is considered a long-term irreversible and irretrievable commitment of resources. The identification of lands for disposal in an RMP is not irreversible because parcel specific environmental review is necessary before a disposal can be completed. An irreversible and irretrievable commitment occurs when a tract leaves BLM management. For impact assessment purposes, it is estimated 6,000 acres will leave federal management during the life of this plan (see subsequent discussion). Based on environmental consequences from past land disposal actions, the overall environmental impacts are considered long-term low negative due to loss of management control of general wildlife habitat, sensitive special habitat, and "open space" values.

If a significant resource value surfaces during environmental review on a tract of land identified for disposal either mitigating measures are implemented to protect the environmental component or the disposal is denied. Mitigating measures include archaeological excavations, exchange for land with equal or better public values or surface management restrictions. In this manner, significant site specific environmental consequences are avoided from individual tract disposals. However, the long term cumulative impact from disposal actions to general wildlife habitat, sensitive species habitat and visual resources would reach moderate negative proportions if disposals approached the 14,400 ac. figure.

During the past 15 years, approximately 2,874 acres of land have left public ownership or management by means of sales (172 acres), R&PP leases (2,594 acres) and exchanges (108 acres). An additional 6,000 acres have gone to the State of Utah to fulfill state entitlements. Interest, primarily in the form of letters, has been expressed for future disposals amounting to 4,104 acres as follows:

Sales	1,080 acres
R&PP leases to cities	965 acres
Private exchanges	2,059 acres

State entitlements have essentially been reached with only 8,847 acres remaining for Quantity Grants statewide. A statewide land exchange proposal for blocking lands between BLM and the State of Utah would affect lands within the Resource Area. The extent is not known at this time. The state usually selects land near the communities for income purposes.

A comparison of past land disposals with interest expressed for future disposals indicates an increase in future disposal demand. However, based on the fact that the state entitlement program will be much smaller and the projected average annual growth rate for Washington County for the next 15 years is 2.2 percent as compared to 10.8 percent for the past 15 years, it is estimated that future land disposal for the life of this plan will be approximately 6,000 acres. This is a reduction of 32 percent over the past 15 year period.

The identified disposal acreage would help accommodate urban growth in Washington County, but this BLM "supply" would also work to conflict with private and state land development because over supply results in lower land values. Land disposed of through the R&PP grant process would be in direct conflict with private and state land development but Bureau sales are made at appraised fair market value and would not conflict with private and state development except through over supply. The supply/demand consequences cannot be quantified.

There are 17 agricultural and nine occupancy trespasses that have been identified. These will be settled with priority given to wilful trespass and trespasses affecting critical resources. Trespass has a low negative impact on the resources and management because of the small acreage involved. Trespass abatement has low positive benefits. The impacts of trespass can be mitigated in most cases by removal of structures and rehabilitation measures.

Withdrawals and Classifications

Under Alternative A, 2,593 acres are segregated against mineral entry by R&PP classifications and 2,530 acres by withdrawals for public water reserves and the LaVerkin Springs desalinization project. Withdrawals on 2,229 acres have been made for powersite classifications and 975 acres have been classified against desert land entry. These actions protect the various resources and are considered long-term low positive benefits to the environment through resource protection.

Forestry

Non-commercial harvest of fuelwood and Christmas trees on 40,175 acres of suitable pinyon juniper woodlands (six percent of Resource Area) is exceeding the ability of the resource to meet demand on a sustained yield basis. If harvest of fuelwood and Christmas trees continues at the current rate, all fuelwood and Christmas trees in the more accessible areas would be harvested in a few years and would be a long-term moderately negative impact to that resource. Demand for posts and desert vegetation is being met under present management with no environmental consequences and no significant increase in demand is expected. However, it is likely that harvest of juniper for fuelwood would increase which could deplete the source of posts in some areas. Sales of woodland products are having no effect on other resource values.

No new land treatments would be proposed under this alternative, so no additional acreage would be available for fuelwood harvest or regeneration of Christmas trees.

Grazing Management

Livestock grazing would continue under current management and authorizations on 537,000 acres in 112 allotments. Actual use has averaged 23,300 AUMs over the past seven years and would be expected to continue at that level. Livestock grazing could be adversely impacted by other resource activities including oil and gas development and ORVs which would damage or eliminate forage plants in use areas. Those impacts to vegetation would be low. Grazing management would benefit from the completion of projects and systems identified in AMPs which would, over the long-term, improve overall range conditions. This is considered a long-term low positive impact on the vegetation resources.

Current management practices would continue to benefit permittees and maintain the social ranching theme of the county. Continuing this alternative would not result in irreversible or irretrievable commitment of vegetative resources because monitoring studies would continue and adjustments would be made if those studies indicate a change is needed in use authorization or in a grazing sytem. Disposal of up to 12,400 acres would result in the long-term irreversible loss of about 600 AUMs of forage which overall would be a low impact.

Cultural

Recommendations under this alternative emphasize protection by avoidance and data recovery where the site would be disturbed or removed from BLM management, i.e. disposal. These recommendations would provide short-term moderately beneficial consequences to cultural resources and would have no adverse impacts on other environmental values. Interpreting, stabilizing and maintaining historical/paleontological/cultural resources would continue to provide long-term moderately beneficial consequences as opportunities are identified and funded.

Visual Resources

The four VRM Class Objectives for acceptable levels of landscape change are based on the baseline visual inventory. In Alternative A, VRM Class Objectives are assigned by RMP decision in accordance with the inventoried classes. The VRM Class Objectives are goals rather than mandatory standards for allowable surface disturbance. The field manager can, with justification, override VRM Class Objectives. Thus, no VRM Class is considered an irreversible commitment of resources. But because the VRM Class Objectives also constitute a formal valuation of the landscape character of the DRA for management purposes, the direct effects of VRM Objectives are considered moderate positive long-term impacts for maintaining scenic quality. Alternative A management is based on relative values of a landscape that possess high overall values. Class III management objectives of the Joshua tree forest on the Beaver Dam Slope, upper watersheds of the Beaver Dam Wash,the upland areas of the Kolob Terrace, the Sandstone Mountain area, view areas adjacent to the Zion National Park entrance corridor, and many of the views from the St. George area emphasize partial retention of the character of these landscapes and allows for moderate changes. Moderate changes in these areas could have long-term moderate negative consequences where retention of the characteristic landscape is essential to retaining visual values. Class II management objectives of the Red Mountain face, Leeds area Navajo sandstone, canyons north of Zion National Park, and Canaan Mountain would retain the character of these areas and surface disturbance would not attract the attention of the viewer. High long-term environmental benefits are associated with Class II management of these important visual resources.

Recreation Resources

Continuation of current management would continue the recreational resource problems identified in Issue No. 2, pg. 6. This would lead to cumulative long term high negative consequences. None of the special management areas would receive the management direction to the degree necessary to adequately protect the resource.

Most of the DRA would be managed as an ERMA. Management of the ERMA would emphasize dispersed recreation management for the Red Mountain, Deep Creek, LaVerkin Creek, Canaan Mountain, and Sand Mountain areas which are Recreation Land designations of the MFP. Current management would emphasize maintenance, limited visitor services, and some upgrading of the Red Cliffs facility as conditions warrant, and to a lessor degree, the Baker Dam site. Other current management objectives include safety considerations and the elimination of unsightly conditions which result in unquantifiable positive impacts.

Over a half million acres, including roads and trails, are currently designated as open/limited and are available to meet the ATV and four-wheel-drive touring demand. A 27,000 acre ORV closure on Canaan Mountain would be a major factor in retaining the primitive recreation resource found there. This closure would not impact the total ORV use and demand in the DRA. Current management would be essentially custodial and routine. In the short term management would meet most dispersed recreation demands. In the long term, this Alternative would result in deterioration of recreational values.

Although the lack of focus and direction of current management has had no direct adverse consequences for recreation, the indirect effects are considered high negative. Current management would not identify logical recreation management units in the more important recreation areas such as Red Mountain, LaVerkin Creek, Sand Mountain, Kolob Terrace, and the Quail Creek area. No areas would be prioritized for funding and recreational planning. If resident and nonresident demands continue to increase at past rates and if new recreation technologies appear, the long-term consequences of the lack of management emphasis, funding priorities, and special management areas planning to allocate conflicting uses could be high negative.

Under current management, Deep Creek and the North Fork of the Virgin River are not classified under Wild and Scenic Rivers Act guidelines as wild, scenic, or recreational. Because interim protection is afforded any classification of an eligible river, the lack of a classification decision could have negative impacts on the present condition of a river. This could occur, if lacking interim protection, the condition of the river changed from wild to scenic, or scenic to recreational as a result of changing recreational patterns.

Soil-Water-Air

Current management would not result in deterioration of air quality. It is not known if surface management is adequate in the protection of the soil. No reliable condition or monitoring data exists to make a judgment on current management. Observation indicates there would be long-term moderate negative consequences to moderate to high erodible soils from continued management practices. Loss of soil is irreversible.

Flood control structures that have been placed in Frog Hollow, Big Sand and Warner Draw have a high positive long-term impact for the communities of St. George and Hurricane. Retention of the land where these structures are located, as well as active management of the watersheds feeding the structures, has a high positive long-term impact to the communities through the reduction of flood and sediment damage.

The current 1,787 acre ORV closure in the Red Bluff Area is not large enough in size to protect the entire 6,010 acres of critical soils which are easily accessible to ORVs. A total of 4,223 acres or 70 percent of the critical soils are unprotected from surface disturbance which constitutes a high negative impact. This impact is also long-term since recovery of the cryptogamic cover will take more than five years. The current 800 acre ORV closure in the Warner Ridge Area is not sufficient to protect the 3,690 acres of critical soil. This leaves 2,890 acres or 78 percent unprotected from surface disturbance by ORVs. This is a high long-term negative impact for the reasons discussed for the Red Bluff area.

There are 13 stream segments and associated riparian areas that are valuable for recreation use, wildlife habitat, wildlife and livestock watering, and water quality maintenance, where no water rights or legal agreements exist to assure continued instream flow. Without a guarantee to flow, other water right holders could seek to remove water from these systems for offsite uses. Water removal would constitute a high negative long-term irretrievable impact.

Special protection for the high quality water of the West Fork Beaver Dam Wash would not be protected under this alternative. Water quality degradation would result in possible loss of the cold water fisheries, and result in costly treatments for culinary uses. Potential loss constitutes a moderate negative impact.

Protection of the Navajo sandstone aquifer is not included in this alternative. This aquifer supplies high quality water to local communities. Any water quality degradation would be a high negative impact which would be costly to remedy.

Overall, this alternative is considered moderately negative for Soil-Water resources.

Riparian

Current practices would continue to have moderate long-term reversible negative impacts on some riparian habitat resulting in cumulative long-term impacts to wildlife dependant on riparian systems.

Alternative A recommendations would not have an overall management strategy for riparian resources. A number of current recommendations would have negative impacts while others would be positive. A total of 4,340 acres (89 percent) of the total riparian resource (4,855 acres) would be open to fluid minerals exploration. This represents a high negative impact. Land disposals containing riparian areas would constitute an irretrievable commitment of the resource should disposal occur without obtaining equal or better riparian values. Impacts would occur in specific areas from livestock over utilization of the riparian vegetation and ORV use destroying vegetation.

On the positive side, program specific actions would take place which would have both direct and secondary positive benefits to the riparian resource. The wildlife program would put high emphasis on the retention and management of riparian. Secondary benefits would accrue from soil and water improvement objectives. Also, protection of woundfin habitat would have beneficial impact to riparian. Overall, the practice of addressing these different positive and negative impacts would result in no clear-cut cohesive management strategy. Analysis of impacts to riparian on a case-by-case basis would prevent the determination of cumulative impact to this valuable resource. No comprehensive process would be applied to the riparian areas to determine whether current management actions are providing protection for either short or long term riparian area functions. Overall, the lack of this knowledge, along with the fragmented approach to management, would result in long-term moderate negative impacts to the viability of riparian areas.

Wildlife and Threatened and Endangered Species

Wildlife habitat management would continue under objectives of five habitat management plans on 436,000 acres as listed in Chapter 2. Approximately 70 percent of the Resource Area is under HMPs providing long-term high positive benefits to wildlife resources. Acquisition of lands (when accomplished) would benefit all wildlife species by providing better management and control of uses on those lands. Discretionary management and the Beaver Dam Wilderness would continue to protect important wildlife habitat areas from potential disturbances associated with right-of-way development. Disposal of up to 12,400 acres would represent an irretrievable loss of wildlife habitat over the long-term and cumulatively would be a moderate negative impact to wildlife habitat. Habitat that could be lost from disposals includes approximately 480 acres of critical big game winter range, 10,000 acres of small game habitat, 360 acres of sensitive desert tortoise and gila monster habitat, 134 acres of riparian habitat, and 1,180 acres of endangered species habitat. Land disposal would be most significant to sensitive species because they are not protected by the Endangered Species Act and could lead to their decline and the eventual necessity of "listing" of those species. The T&E species habitat is protected by the Endangered Species Act, so the only habitat of those species that could be disposed would be habitat deemed not essential by the U. S. Fish and Wildlife Service after Section 7 consultation. Overall, impacts to sensitive species from land disposals would be moderate and irreversible.

There would be 17,700 acres of critical big game winter range open to fluid minerals leasing. Of this total, 6,840 acres have moderate potential for oil and gas reserves. Activity associated with development of oil and gas on critical winter ranges during the winter months would place additional stress on deer at the time of year when they are already stressed from weather. There would be 407,000 acres of important Gambel's quail habitat open to oil and gas leasing including 66,700 acres with moderate and 5,000 acres with high oil and gas reserves. Development of those reserves would result in quail being displaced from the area immediately surrounding developments and facilities, approximately five to 10 acres each, for the life of the project. There would be 68,800 acres of sensitive tortoise and gila monster habitat open to fluid mineral leasing, including 1,400 acres having moderate potential for oil and gas reserves. Those animals would not be protected from development of those reserves during their active periods. Those animals would be subject to crushing by vehicles or illegal collecting. New road development could also increase incidental traffic into those areas. Overall, cumulative impacts to wildlife habitat from fluid mineral development would be low.

Potential mining activity associated with locatable mineral development on Beaver Dam Wash and Santa Clara River could impact up to 935 acres of Virgin River spinedace habitat. The VRM Class 2 area objectives would continue to provide protection for 6,700 acres of sensitive tortoise and gila monster habitat in the Red Cliffs area.

Beaver Dam Mountain Wilderness would continue to protect 85 acres of woundfin habitat on the Virgin River. Fluid mineral leasing closures at Red Cliffs, Deep Creek, and Canaan Mountain would protect 2,600 acres of peregrine falcon habitat. Maintenance of the 3,040 acre Woodbury Desert Study Area would benefit the desert tortoise through oil and gas Category 3 protection. The Joshua Tree National Natural Landmark portion of this area is presently closed under PL 100-203. All of this acreage has low potential for oil and gas reserves. Should the existing decision to withdraw the Woodbury Desert Study Area be completed, a total mineral withdrawal on the Woodbury Study Area would provide complete protection from locatable and fluid mineral development; fluid mineral leasing would change to Category 4 on an additional 2,000 acres. Category 2 stipulations would continue to provide seasonal protection from fluid mineral development on 27,000 acres of desert tortoise critical habitat on the Beaver Dam Slope. All of this acreage is within an area of low potential for oil and gas reserves and high potential for locatable minerals.

All endangered plant habitat (4,900 acres) would remain open for fluid mineral leasing; 1,700 acres have moderate potential for oil and gas reserves. Development of fluid mineral reserves in plant habitat areas would result in the loss of plants at drill sites, facility sites, and on access roads, and would have a high negative impact to those species. Acquisition of lands containing habitat of T&E species would provide better control and management of uses on those lands. Specific acquisition lands would not be identified.

In summary, approximately 17,700 acres of critical deer winter range, 3,500 acres of high density tortoise and gila monster habitat, 4,900 acres of endangered plant habitat, and 407,000 acres of Gambel's quail habitat would remain in Category 1 and would be vulnerable to impacts associated with fluid mineral exploration and development. Cumulative impacts to quail and tortoise habitat would be moderate.

All of the Beaver Dam Slope desert tortoise critical habitat area would remain open to hardrock mining and is within an area of high mineral potential. Development would result in high negative impacts to desert tortoise by damage to winter dens or the tortoise themselves.

Most of the bear-poppy habitat (4,900 acres) is claimed for gypsum and subject to development. Protection of soils in the Red Bluff area would also benefit bear-poppy habitat in that area. Vehicle use would be limited to existing roads and trails on 27,500 acres of the Beaver Dam Slope and limited to designated roads and trails within the Joshua Tree Natural Area and Woodbury Desert Study Area (3,200 acres) which would protect tortoise habitat within those areas. ORV use would be closed on West Fork Beaver Dam Wash, Warner Ridge, Price City Hills, and Red Bluff which would protect 100 acres of spinedace habitat and 2,400 acres of endangered plant habitat. ORV closures on Red Cliffs and Canaan Mountain would protect 27,000 acres of peregrine falcon habitat. These ORV designations provide moderate beneficial consequences for T&E species.

Summary A

Existing management, which is beneficial in some cases, would continue. Those management actions (or lack of actions) which have led to the management concerns and issues described in Chapter 1, would also continue.

Without a planned approach toward resolution of these problems, each one would be resolved (for better or worse) as it surfaced for management attention. This piecemeal (or crisis management) approach to resource management problem solving may unintentionally ignore secondary impacts which could be prevented using a comprehensive aggressive planned approach to issue resolution. There are new management directives designed to enhance the long term recovery and protection of "high profile" environmental concerns such as endangered species, riparian systems, scenery, wildlife and outdoor recreation opportunities. These concerns, as well as the planning issues are not getting the management focus needed without new objectives and plans. Lack of planning can also affect resource "use" concerns such as mineral and utilities planning and land tenure changes.

Current management would not meet the standards for public awareness that FLPMA prescribes for scoping and interdisciplinary analysis. BLM program guidance has changed since the last plan. Community growth has rendered the old plan obsolete because management is focused on areas and issues which have changed in their very nature.

A cumulative assessment of impacts to all resources and programs in this alternative concludes that under the existing management objectives there has been and will continue to be an incremental deterioration of the existing environment which may be of proportion to constitute a significant impact to the human environment.

The social and economic impacts of this alternative would remain the same as discussed under current management with no additional costs for BLM implementation.

In summary, this alternative is marginal management because it leaves many environmental uses and values highly vulnerable to unintentional severe impacts through lack of management direction.

Alternative B - Impacts

Mineral Fluids

Fluid mineral category acreages proposed under Alternative B are:

Category 1 Open	Category 2 Special Stipulations	Category 3 NSO	Category 4 Closed
419,065	82,920	123,055	2,635

Under this alternative sensitive natural resources are protected by the assigning of categories. Changes between Alternative A and B are:

Category 1
Open

A	B	Change
514,510	419,065	-95,445

Category 2
Special Stipulations

A	B	Change
26,700	82,920	+56,220

Category 3
No Surface Occupancy

A	B	Change
40,585	123,055	+82,460

Category 4
Closed

A	B	Change
45,880	2,635	-42,245

Additions to Category 2 (special stipulations) are due to critical deer winter range, municipal watersheds, desert tortoise habitat with densities exceeding 20 tortoises per square mile and critical wildlife habitat.

Additions to Category 3 (No Surface Occupancy) are due to riparian habitat buffers, endangered plant habitat, and recreation opportunity spectrum primitive prescriptions. A low negative impact would occur from Category 2 designation. This is due to the overlap of 6,225 acres of Category 2 designation being in the moderate and high potential zone. Also of minor concern, is the seasonal stipulation which could cause a delay in exploration for three months each year. A high negative impact would occur from Category 3 designations because 12 percemt of the Potential Zone would receive these designations.

Overall impact to fluid minerals is considered moderate negative because of the low level of historic development and exploration. Overall environmental impacts from the reasonable development scenario (pg. 31) indicate no more than low cumulative impacts based on the 200 surface acres of predicted disturbances.

Materials (Saleable)

The major change between Alternatives A and B, is the identification of closure areas and restriction areas. The restriction areas cover 131,520 acres, including 8,440 acres of critical soils in Warner Ridge and Red Bluff ACECs and 4,855 acres of riparian. Closure areas include 85,330 acres of ORV closure (Primitive ROS, Baker Dam and Red Cliffs campgrounds, T&E plant and animal habitat) and withdrawal. This may appear as a major impact but in reality is not. These critical resources would be avoided as a result of identification during the EA process. So the overall impact of the program is negligible, the same as Alternative A. There is, however, a positive side to the identification of the restriction and closure areas. Knowing where the restriction and closure areas are will allow quick identification of potential problems for any material sales proposal before time and money is spent on preparation of an EA. Also, this will allow for adjusting material site locations into non-critical areas.

Minerals (Locatable)

The difference between Alternative A and B is in the identification of restriction areas totaling approximately 118,670 acres and a proposed mineral withdrawal on the 3,040 acre Desert Woodbury Study Area.

The restriction areas represent a low negative impact to the industry. Mine plans would be required in these areas regardless of mine size. This would require additional time and money before the mine plan was approved. Withdrawal of the 3,040 acre Desert Woodbury Study Area would involve 1.2 percent of the minerals potential area which is a long-term moderate negative impact for industry.

Rights-of-Way

Two right-of-way corridors would be designated under this recommendation. One would follow the route of the existing IPP, a 500 Kv north-south overhead powerline. The other would follow the east-west route of the 500 Kv Navajo-McCullough line. Alternative B is considered a high positive benefit because it would significantly reduce the costs incurred by the utility industry to analyze various route alternatives, would meet the planning needs identified by the industry, fulfil FLPMA requirements and guidelines (sec. 503), and meet Bureau objectives for managing scenic resources by collectively routing interstate utilities with accompanying structures and surface disturbance into designated corridors.

Existing rights-of-way in both of these interstate lines were cleared through previous NEPA documents. Additional rights-of-way would still require environmental clearances for cultural resources and T&E species for any needed mitigating measures. These routes would coincide with planning of adjacent states and the Western Regional Corridor Study in efforts to link established rights-of-way for interstate utilities into a corridor network for long-range utility planning. Major interstate rights-of-way would be restricted to these designated corridors where feasible.

The 20,000 acres of land within the 32 miles of corridors would be committed to interstate utility rights-of-way. This would be an irreversible and irretrievable long-term commitment of resources because utilities are considered permanent installations and rights-of-way are issued for 30 years. All other uses compatible with rights-of-way would continue within the corridors. The existing "defacto" corridor has not measurably impacted other resources other than visual intrusion. Avoidance areas would be identified under Alternative B recommendation for protection of significant resources; i.e., VRM I, II, T&E habitat, riparian zones, Primitive ROS. The approximate acreage to be avoided is 267,775 acres.

Avoidance areas are considered to have high positive impacts because they help meet Bureau objectives for managing sensitive resources by reducing the proliferation of visual intrusions and surface disturbing activities associated with right-of-way development (Issue (1) f, k, pg 8). They also significantly assist utility companies with right-of-way planning. These areas become right-of-way avoidance areas because of special values which surface disturbing activities would impact. Establishment of Avoidance Areas would preserve and protect the special values present by increasing awareness of those values. Rights-of-way would not be granted in those areas unless there were no feasible alternative routes available. Actions which are non-damaging to the resource being protected would be considered, e.g., non-surface disturbing facilities which span riparian habitat.

The Beaver Dam Wilderness Area would become a right-of-way exclusion area. This is an area where future rights-of-way would be granted only when mandated by law. This would be a positive benefit for wilderness because it administratively confirms statutory obligation to prevent surface disturbing activities and structural intrusions in designated wilderness (Wilderness Management Policy, 1981). Under this alternative there would remain approximately 476,200 acres open for right-of-way consideration on a case by case basis.

The projected demand for rights-of-way would be the same as for Alternative A. However, the impacts of surface disturbing activities and visual intrusions would be significantly reduced by the designation of right-of-way corridors and avoidance areas because critical areas would be avoided as much as practical. Avoidance designations would significantly benefit right-of-way planning of the utility industry through cost savings incurred in route selection. The designation of right-of-way corridors and avoidance areas would have long-term high positive benefits on the environment with additional high positive economic benefits to the utility industry.

Lands

There are 32,649 acres of public land identified for possible land disposal under this alternative and 42,881 acres identified for acquisition. This is an increase in disposals of 20,115 acres from Alternative A and the identification of 56 specific parcels not identified under current management. The disposals are lands brought forward from the MFP as well as additional lands identified as a result of expressed public interest from state and local government and private individuals. There are 23,700 acres of possible disposals which are included in a pool of lands identified by BLM to be used in acquiring, by exchange, lands identified for acquisition in this plan. Of the lands identified for disposal, 2,684 acres potentially meet FLPMA Section 203 sale criteria. Parcel specific analysis to determine if FLPMA criteria is being met will be made during the EA process prior to disposition of the tract. There are 29,965 acres that meet other disposal criteria , e.g., state selections, quantity grants, exchanges and R&PPs. The disposals would accommodate community growth, private interests and improve BLM management. The cumulative disposal of this much acreage is considered to have long-term high negative consequences. Although it does not amount to 10 percent of the total resource base, some of the parcels involve T&E, riparian, and high quality scenery. This alternative would accommodate community needs in Washington County on 5,000 acres of identified disposal within city limits. Current BLM management is not designed to effectively manage these properties. This action would have high-long term positive social consequences by allowing communities development access to all lands within their boundaries.

There have been 43,746 acres identified for acquisition. Resource conflicts resulting from mixed surface estate and differing management goals could be reduced by acquiring identified parcels of State or private land through the exchange process. Acres and benefiting resources are shown below.

Acquisition Acres	Benefiting Resource
7,956	Soil, Water, Air and Riparian
19,025	Riparian and Wildlife Habitat
1,700	Sensitive Wildlife Habitat (Tortoise - N. St. George)
3,090	Endangered Wildlife Habitat (Tortoise - Beaver Dam Slope)
3,577	Recreation (ERMAs)
10,886	SRMAs
5,000	North Zion SRMA

The State of Utah has identified 11,300 acres of state land for disposal and 13,000 acres of BLM land the state would like to acquire. An exchange program with the state would benefit management for both agencies.

Acquisitions are considered to have long-term high positive benefits to soil, water, riparian, wildlife, T&E species and recreation because of the opportunity to acquire land containing equal or better public values and to improve land patterns and management opportunities through blocking of public, state, and community lands. Therefore, as long as the decision to exchange for equal or better values is adhered to, Alternative B would be high positive because the public would gain more acres of equal or better resource values and land management patterns would be improved for federal, state and community land management purposes.

The need for road easement acquisition where BLM roads cross State land (43 miles) and private land has been identified. Road easements are needed to provide access to public lands for recreational and administrative purposes. Easements would be reserved across all tracts of land disposed. An opportunity has been identified to acquire through a nondevelopment easement non-motorized access along the Virgin River from above Quail Creek Reservoir to Washington for recreational purposes (6.5 miles).

Easements would provide medium long-term positive benefits to management and users of the resources by assuring access to the public lands.

Competition with the State of Utah policy of obtaining the highest economic return for their property will be highly negatively impacted by a competitive BLM program offering land sales in the same vicinity. This is extremely important in Washington County where the State Dixie Management Plan is being implemented and the state has already acquired large parcels of land for their economic development.

Withdrawals and Classifications

In this alternative an additional 3,230 acres would be withdrawn on the Desert Woodbury ACEC. Other impacts are as described for Alternative A.

Forestry

Alternative B would provide long-term low positive consequences for woodlands. No significant impacts to woodland resources would be expected under this alternative. Woodland resources would be managed for a sustained yield of 1,200 cords of fuelwood, 2,000 posts, and 500 Christmas trees per year, based on a 150-year stand rotation which is the time required for pinyon and juniper to reach a harvestable size of eight to ten inches in diameter.

The desert vegetation sale area on Beaver Dam Slope would be expanded from 380 to 4,000 acres to allow for more dispersed use of vegetation from that area. Demand for desert vegetation is not expected to increase significantly.

Grazing

Livestock grazing would continue under current management and use authorizations on 537,000 acres in 112 allotments. Actual use has averaged

23,300 AUMs over the past seven years and would be expected to continue at that level. Environmental consequences would be the same as Alternative A (pg. 165).

Grazing monitoring studies would continue and adjustments made if those studies indicate a change is needed in use authorization or grazing system. Threatened, endangered, and sensitive species would be given preference in conflict resolution, based on monitoring studies which could result in adjustments in grazing management including forage allocations or season of use changes. Ecological site descriptions would provide positive long-term benefits to grazing management by providing site-specific management potential on vegetation. Long-term acquisition of 38,900 acres would benefit grazing management by providing approximately 2,000 AUMs of forage and better management opportunities resulting from better land ownership patterns and would have a moderately positive long-term impact to this program.

Maintaining flows in seven streams would improve livestock management opportunities. Disposal of 33,700 acres would result in the long-term irretrievable loss of about 1,700 AUMs of forage. This would represent a loss of 21,300 more acres and 1,100 more AUMs than identified in Alternative A and would represent a moderately negative impact to grazing management. Category 2 (82,900 acres), Category 3 (123,200 acres), and Category 4 (2,600 acres) for fluid mineral leasing would protect seasonally 208,700 acres of vegetation from potential disturbance.

Cultural

All aspects of current management of cultural resources would be continued under Alternative B with moderately beneficial consequences (see pg. 165). Alternative B would also establish four archaeological ACECs in the DRA. These ACECs would be created in the important riverine adaptions along the Santa Clara and Virgin Rivers. The upland Anasazi adaptation on Little Creek Mountain would also be designated. Because the ACEC prescription would place the riverine sites under insitu conservation protection status rather than the current protection by data recovery, the direct positive impacts benefits to an in-place resource would be high. ACEC designation of Little Creek Mountain would recognize the importance of this resource and enhance the long-term research potential on this mesa.

Disposal of parcels No. 7 and No. 25 would be of high negative impact to the insitu protection of cultural resources. These two disposal parcels are on lands warranting ACEC management. Mitigation would be through recovery or deleting the significant archaeology from disposal during the EA/Land Report required for each disposal action.

Visual Resources

Alternative B maintains the VRM classes from Alternative A. In addition, landscapes with high scenic quality and sensitivity are identified as important components of the recreation resource base and visual resource base. Alternative B requires that the analysis of non-surface disturbing proposals such as land tenure adjustments be incorporated into the VRM program. The environmental consequences of expanding the perspective of the VRM program to include non-surface disturbing actions are considered positive high long-term, particularly in the urban areas and within the highly sensitive travel corridors.

Alternative B would designate 5,455 acres of the south escarpment of Red Mountain and the west wall of Snow Canyon as the Red Mountain Face Visual ACEC. The ACEC is the single most important BLM scenic feature in the urban setting. It is also an integral part of the Snow Canyon State Park landscape. Retention of the landscape character would have high positive long-term social and economic benefits to both residents and the State of Utah in general. Alternative B would designate 3,254 acres of the south escarpment of Canaan Mountain and south face of Smithsonian Butte as a Canaan Mountain Visual ACEC. The ACEC would benefit tourist sightseers traveling between Zion National Park and Pipe Springs National Monument. This ACEC formally recognizes the most internationally significant scenic resources in the DRA. The ACEC designation is considered an irreversible commitment of resources for the life of this plan. Scenic ACECs would be given a VRM I class (Fig. 3-9, pg. 124).

Recreation Resources

Under Alternative B, four SRMAs and seven ACECs would be established in the Resource Area. Included within the SRMAs are the Red Mountain, Deep Creek, LaVerkin Creek, and Sand Mountain areas previously designated as recreation lands in the MFP. The DRA portion of the Canaan Mountain SRMA would be verified to include all the plateau top and cliff face.

The Special Management provided from SRMA administration and subsequent activity planning, would provide long-term management direction for the recreational resources. This is considered long-term high positive cumulative impact to the active recreational use of the Resource Area. The establishment of ACECs will enhance the more passive forms of recreation use of resources, such as viewing T&E species, archaeology, and picnicking along riparian zones. The ACECs are considered to have low positive impacts for the recreational use of the Resource Area. The designation of ACECs is considered irreversible commitment of resources for the life of the plan. The administration of SRMAs is considered reversible if the management situation changed dramatically during the life of the plan.

Overall, recreation uses dependent upon the primitive or semi-primitive qualities of the lands would benefit from the SRMA proposals. State Park users and users of the Red Cliffs site will also benefit. Although tourists would benefit from the SRMA emphasis placed upon important scenic views, the major travel corridors would remain in the ERMA. Tourist sightseeing would be negatively impacted by the lack of pullouts, view areas, and interpretive facilities along these heavily used routes. The heavy resident recreational touring and other dispersed uses of the ERMA lands west of the Santa Clara River would not receive management emphasis.

Alternative B assigns funding and recreation activity management planning (RAMP) priorities to SRMAs in the order of (1) Red Cliffs/Sand Mountain, (2) Deep Creek, (3) Red Mountain/Santa Clara Creek, (4) Black Ridge/LaVerkin Creek, and (5) Canaan Mountain. The Sand Mountain ATV resource and users of the Red Cliffs facility benefit from the high priority of this SRMA. Early coordination and planning for both private and public sector provision of recreation in the Quail Creek-Sandstone Mountain area will result in a greater variety of facilities and activities available to local recreation users.

Recreational opportunities are allocated on a sustained yield basis within SRMAs along a primitive to developed opportunity scale based upon the ROS system. Although the RAMP planning process details the specific management requirements of each ROS zone, the RMP allocation is of benefit because it provides immediate basic direction and resolves conflicts in areas where competing opportunities might exist. Because the allocation is to sustained yield, it ensures that the specific ROS opportunities that are allocated will be maintained. For all SRMAs, the ROS opportunities are proportioned as Primitive-P (38 percent), Semi-primitive Motorized-SPM (53 percent), Roaded Natural-RN (1 percent) and Rural-R (8 percent). This allocation provides for a variety of opportunities and experiences on the most significant recreation lands of the DRA. The allocation is balanced in accordance with the expressed recreation demands for these lands.

The decision to allocate the primitive opportunity is supported by RMP decisions to close this ROS zone to ORV use and to establish a no surface occupancy oil and gas category. The ORV closure is essential to sustained yield maintenance of the primitive experience. In circumstances where ORV use and oil and gas exploration would create surface scarring, the ORV closure and NSO category would also prevent any irreversible losses within the "P" ROS zones.

Deep Creek and the North Fork of the Virgin River are Wild and Scenic Rivers Act "eligible" rivers. Alternatives B would formally classify segments 1/4 mile in width from each bank as "Wild" and provide long-term moderate positive impacts through interim protection support for the "Wild" classification. The Deep Creek and North Fork canyons would be opened to oil and gas leasing with an NSO category and closed to ORV use under the "P" ROS direction of the alternatives. Under "Wild" interim protection, new road construction would be prohibited and the free-flowing condition of both streams would be maintained. Because these canyons are shared with Zion National Park and associated with the Zion Narrows hiking opportunity, the alternatives seek to preserve the BLM portion of the canyons. This alternative would have direct positive environmental effect upon canyon protection and would prevent any irreversible loss of the canyon resources.

The Beaver Dam Mountains Wilderness would be removed from SRMA status and placed in the Dixie ERMA. This action administratively clarifies the intent of Congress in the Arizona Wilderness Act of 1984. Elimination of any conflicts or confusion between wilderness and recreation management objectives for the Wilderness Area would have direct positive consequences for the wilderness resource.

Soil-Water-Air

In addition to the impacts described in the Alternative A impact discussion, Alternative B would have the following consequences:

There would be a high positive impact from obtaining water rights or agreements on the thirteen stream segments (59.7 miles) previously identified (pg. 130). Instream flow is needed to protect recreation uses, wildlife habitat, wildlife and livestock watering and water quality maintenance.

Development and application of the watershed condition analysis process, along with subsequent monitoring would help fulfill the Bureau's responsibility under Section 319 of the Water Quality Act of 1987. The process would be applied to all Bureau lands to determine potential, current and acceptable conditions. Monitoring would be the key to determining whether or not management is adequate to meet objectives. Upland site monitoring would determine soil loss values and how they relate to acceptable condition and would be conducted by the Bureau. Instream water quality monitoring sites and objectives will be established in conjunction with the Utah Division of Water Pollution Control and the Five County Association of Governments. The objectives of the monitoring will be to determine if Bureau management is degrading water quality beyond containment maximums for designated instream beneficial uses (i.e., fisheries, recreation, wildlife, livestock and human consumption). Should a determination be made that bureau management practices are causing or contributing to exceedance of standards, the bureau, state and Five County Association of Governments would propose action (best management actions) to solve the problem. This would be a high positive impact.

An ACEC designation on Red Bluff and Warner Ridge and the resulting prescriptions would provide protection on 8,440 acres of the total 9,700 acres of critical soils. This represents a moderate positive impact. Disposal parcel No. 21 conflicts with the Red Bluff ACEC along the east boundary, T&E plants and fragile soils extend into tract No. 21 on approximately 1,200 acres. Acquisition of 1,920 state acres mitigates this conflict.

Designation of these areas is intended to call attention to sensitive saline soils that are receiving ORV disturbance, in spite of ORV closures. Management prescriptions on the ACECs include an educational initiative to inform the public on the values of the area, ORV closure, and fluids mineral Category 3 designation.

Currently long-term negative impacts are occurring on the parts of these areas nearest the communities. Surface cover consists mainly of cryptogams which are easily destroyed and once removed take more than 10 years to reestablish. Cover destruction is occurring mostly in up and down slope directions which is not only removing the cryptogams but providing flow paths for subsequent rainfall/runoff events. Runoff is quickly concentrated into the flow paths causing large volumes of salt and sediment to move into the Virgin River which is no more than four miles away. The soils are very sensitive to erosion when exposed but are very stable when cryptogamic cover is maintained. Prevention and/or reduction in current surface disturbance is an extremely cost effective Colorado River salinity control method. It is very likely this recommendation would result in an unmeasurable salt reduction measured at Imperial Dam. However, this action taken cumulative with similar actions throughout the Colorado River Basin would make a measurable difference.

The Beaver Dam Wash watershed produces very high quality water that is currently supporting both warm and cold water fisheries as well as other wildlife and recreation opportunities. In addition, the municipalities of Ivins, Santa Clara and St. George are exploring the idea of developing groundwater supplied from the Beaver Dam Wash watershed for use in the communities. These values are the reasons for designation of Water Protection Zone (WPZ) and the subsequent management recommendations. The recommendations are to close the area to ORV use, a one-mile-wide fluid minerals NSO buffer and designation of the west fork Beaver Dam Wash as an anti-degradation segment by the State of Utah. These actions would provide the framework to control surface disturbing actions through the application of best management practices. Designation of the WPZ would have a high beneficial impact.

Designation of the Navajo Sandstone aquifer as a municipal watershed is designed to restrict incompatible surface uses such as sanitary landfills, and hazardous materials sites and to place a special stipulation on fluid minerals. The special stipulation is the grouting of the outside of the well casing to prevent the mixing of water or other drill related substances with the high quality water found in the Navajo aquifer. Protection of the high quality water represents a high positive beneficial impact.

Riparian

Current practices as described in Alternative A impact analysis would continue to have moderate long-term reversible negative impacts on some riparian habitat resulting in cumulative long-term impacts to wildlife dependent on riparian systems. In addition, Alternative B would provide the following impacts:

Acquisition of 625 acres of riparian throughout the Resource Area would be a high positive benefit to the riparian resource. The areas identified are located at various locations throughout the Resource Area (Fig. 3-6, p. 114) and represent excellent opportunities to block up Bureau riparian for enhanced management effectiveness. For example, the riparian occurring on non-public lands along the Virgin River, between Quail Creek Reservoir and the confluence with Ash Creek, are of high value to many other programs and is the number one priority for acquisition. This area has excellent riparian, recreation opportunities, cultural resources, and wildlife habitat, including the endangered woundfin. Acquisition of these lands would help assure that these many uses continue and are not pre-empted by developments.

The ORV designations in riparian areas will have a high beneficial impact. The areas where use is allowed to continue will have that use confined to existing roads. Other areas will benefit from closure to ORVs. The valuable resources in these areas will be protected.

Fluid mineral leasing category 3, NSO designation of one-half-mile wide (except on the West Face Beaver Dam Wash which is one mile wide) will produce a high beneficial impact. The buffer will provide an area in which to control pollutants, preventing them from reaching the riparian areas.

ACEC designation on the four riparian segments is a high beneficial impact to high value riparian zones. Designation will call attention and provide management to these areas. Disposal of parcels No. 7 and No. 25 would constitute high negative impacts. The riparian values on these two parcels warrant ACEC management. Approximately 340 riparian acres would be removed from BLM management predominantly from parcel No. 25. The quality of these riparian acres could not be replaced by exchange procedures. Mitigation of this impact would be to exclude the riparian zone from disposal action in the parcel specific EA/Land Report required for all land disposal actions.

Easement acquisition of approximately 6.5 miles of riparian habitat within the Virgin River 100 year floodplain between Quail Creek Reservoir and the Washington Fields diversion would protect riparian habitat which is essential to the survival of the woundfin. This segment is the best habitat left in the woundfins former range. Acquisition and protection are considered a high positive impact.

Wildlife and Threatened and Endangered Species

General Wildlife

Wildlife habitat management would continue under objectives of four habitat management plans on 233,500 acres as identified in Chapter 2. Beaver Dam Slope HMP (202,500 acres) would be revised and West Zion HMP (192,200 acres) would be developed as a new HMP. Upon completion of the West Zion HMP, all wildlife habitat in the Resource Area would be under management of an HMP. Acquisition of up to 19,000 acres would benefit all wildlife species by providing better management opportunities and control of uses on those lands. This action would be a moderate positive impact to wildlife. Of particular importance would be the acquisition of up to 900 acres of riparian habitat. Under this alternative, at least 95 percent of public land in the Resource Area (594,500 acres) would remain in public ownership and available for wildlife habitat management, which is 21,300 fewer acres than would be available under Alternative A. Disposal of 33,700 acres of wildlife habitat would be an irreversible, high negative impact to wildlife. Establishing utility corridors would benefit all wildlife by reducing the number of rights-of-way needed throughout the Resource Area, thereby reducing overall impacts to wildlife habitat. Right-of-way avoidance areas (267,775 acres) would be moderate positive benefit to wildlife by reducing or eliminating most habitat impacts in those areas.

Ecological sites descriptions would benefit wildlife by providing information on site potential which would allow for more intensive, site-specific habitat management. Land treatments and/or improved livestock distribution practices in allotments where monitoring studies show a need for change in grazing management would benefit wildlife by providing additional forage, water, and groundcover.

Maintaining instream flows would provide water for wildlife consumption, habitat for fish, and maintain riparian vegetation which is used by wildlife for food and cover. A water protection zone on the West Fork Beaver Dam Wash would provide protection from unnecessary surface disturbances on (30,300) acres of wildlife habitat. Wildlife habitat would be protected and enhanced under the proposed recreation management zones for the Deep Creek and LaVerkin Creek SRMAs (32,000 acres) which close those areas to ORV use through primitive ROS prescriptions.

Critical Big Game

Alternative B provides high positive long-term consequences for big game. Under this alternative, all critical big game habitat (17,700 acres) would be retained in public ownership. An additional 5,500 acres of important summer and winter deer habitat would be acquired. Avoidance of rights-of-way on Black Ridge would protect (17,700) acres of critical winter range in that area. Category 2 or 3 designation for fluid mineral leasing would protect 17,700 acres of critical deer winter range from development during the winter months when deer are under most stress. This acreage includes (6,800) acres with medium potential for oil and gas reserves which is the deer habitat most likely to be developed for oil and gas. Under Alternative A, critical winter range would remain in Category 1. New water developments for wildlife would improve the distribution of deer on winter ranges. Deep Creek (9,000 acres) and LaVerkin Creek (23,000 acres) SRMAs would provide additional management and protection of deer summer and critical winter range, respectively through primitive ROS prescriptions which closes those areas to ORV use.

Small Game

Alternative B would provide moderate positive long-term benefits for small game. Under this alternative, at least 95 percent of important small game habitat would be retained in public ownership. Most riparian habitat would be retained which provides important yearlong habitat for Gambel's quail, cottontails, waterfowl, and trout. Some riparian habitat is available for disposal through exchange. Although policy requires equal or better habitat be acquired by BLM, total disposal of parcels No. 7 and No. 25 would significantly impact resource values worthy of ACEC consideration. Approximately 340 acres of riparian habitat would be impacted. The loss of management on these acres would be a high negative impact for small game. Mitigation would be to exclude the riparian zones from these two disposal parcels during the site specific EA/Land Report required for each disposal action. Acquisition of an additional 2,500 acres of riparian habitat would protect small game habitat and enhance management opportunities. This would be a high positive impact. Category 2 designation for oil and gas leasing on 26,600 acres of desert tortoise habitat and Category 3 designation on all riparian habitat areas (4,855 acres) would protect important small game habitat from surface disturbances and would be a low impact. This acreage includes 1,500 acres with medium or high potential for oil and gas reserves which is the habitat most likely to be developed for oil and gas. Under Alternative A, all 27,700 acres would be open to oil and gas development. Maintaining instream flows would provide water for small game, habitat for trout, and would maintain riparian vegetation used by small game for food, cover, and nesting habitat. Maintaining current ORV closures on 30,000 acres and limiting ORVs to existing or designated roads and trails on 58,700 acres would protect important quail habitat in those areas, which is an increase of 28,000 acres over Alternative A. ACEC designations for Lower Virgin River, Santa Clara Landhill, Santa Clara Gunlock, City Creek, Woodbury, and Warner Ridge would provide additional surface protection to 13,800 acres of important quail habitat by imposing 3,809 requirements for locatable mineral development which would prevent undue and unnecessary surface disturbances. Deep Creek SRMA (9,000 acres) would provide additional management and protection to trout habitat through an ORV closure.

Sensitive Species

Acquisition of 1,700 acres of crucial desert tortoise habitat north of St. George and 1,280 acres of Virgin River chub and spinedace habitat on Deep Creek, Santa Clara River, Virgin River, and West and East Forks Beaver Dam Wash would provide better management and control of uses on those areas by reducing private inholdings and blocking federal lands. This would be a high positive impact to sensitive species. Category 2 for oil and gas leasing on 3,500 acres of sensitive habitat would benefit desert tortoise and gila monster by preventing surface disturbances during the time of year when those animals are active. This acreage includes 1,400 acres with medium or high potential for oil and gas reserves which is the area most likely to be developed for oil and gas. Protection of this habitat would protect tortoises and gila monsters from possible injury or death from being run over or by having their dens crushed. Category 3 for oil and gas leasing on 1,280 acres of riparian habitat would benefit Virgin River chub and spinedace and spotted bat by preventing surface disturbances to streams in those areas. This acreage includes 195 acres with medium or high potential for oil and gas reserves. Under Alternative A, these areas would remain in Category 1. Overall, impacts to sensitive species from changes in oil and gas categories would be positive high.

Adjustments in livestock grazing practices resulting from needs identified in monitoring studies would benefit tortoise and gila monster by providing additional forage and cover. Maintaining instream flows would provide habitat for spinedace. Limiting ORVs to existing roads and trails on 28,000 acres north of St. George would protect crucial tortoise and gila monster habitat in those areas, which is an increase of 28,000 acres over Alternative A. The ACEC designations for Lower Virgin River, Santa Clara Landhill, Santa Clara Gunlock, City Creek, and Warner Ridge would provide additional surface protection to 10,600 acres of desert tortoise, gila monster, spotted bat, Virgin River chub, and spinedace habitat. Category 2 and 3 designations for oil and gas development, ORV limitations on 3,100 acres, and 3809 requirements for mineral development which would prevent undue and unnecessary surface disturbances. ACEC designation would be a high positive impact to sensitive species. Deep Creek SRMA (9,000 acres) would provide additional management and protection for spinedace habitat. Protection of the Navajo sandstone aquifer north of St. George would provide protection to 5,300 acres of tortoise and gila monster habitat from surface disturbances. The VRM Class II objectives on 6,700 acres would benefit tortoise and gila monster habitat from surface disturbances.

Threatened and Endangered Species

Right-of-way avoidance areas and ORV closure areas would protect habitat of endangered plants and animals in those areas from surface disturbances. All habitat of T&E species (46,500 acres) would remain in public ownership unless less desirable habitat could be exchanged for better habitat. Acquisition of 3,100 acres of desert tortoise habitat within the Beaver Dam Slope critical habitat area, 640 acres of woundfin habitat on the Virgin River, and 1,300 acres of bear-poppy habitat in the Red Bluff area would substantially increase overall public land habitat of these species and provide better management and control of uses on those areas. Impacts from land acquisition would be high positive. Category 2 for oil and gas leasing on 23,100 acres of critical habitat would benefit desert tortoise by preventing surface disturbances during the time of year when those animals are active. This acreage lies within an area of low potential for oil and gas reserves. Category 3 for oil and gas leasing on 780 acres of riparian habitat on the Virgin River would benefit woundfin by preventing surface disturbances to that area. This acreage includes 340 acres with medium potential for oil and gas reserves and is an area which may be developed for oil and gas if left in unprotected category. Changes in oil and gas categories to protect endangered species would have a high positive impact. Under Alternative A, these areas would remain in Category 1.

Adjustments in livestock grazing practices resulting from needs identified in monitoring studies would benefit tortoise by providing additional forage and cover. Maintaining instream flows would provide habitat for woundfin. Existing ORV restrictions would remain in effect which protect critical tortoise habitat on the Beaver Dam Slope (22,400 acres), peregrine falcon habitat on Canaan Mountain (33,000 acres), and bear-poppy and Siler cactus habitat on three sites (2,400 acres). ACEC designations for Lower Virgin River, Santa Clara Landhill, Santa Clara Gunlock, Beaver Dam Slope, and Warner Ridge would provide additional surface protection to 6,900 acres of desert tortoise, woundfin, and endangered plant habitat: Category 2 and 3 designations for oil and gas development, ORV restrictions on 5,100 acres, and 3809 requirements for mineral development which would prevent undue and unnecessary surface disturbances. ACEC designation would have moderate positive impact. Deep Creek and Red Cliffs SRMAs (33,000 acres) would provide additional management and protection for peregrine falcon habitat.

Disposal tract No. 25 directly conflicts with protection of woundfin habitat on the Virgin River warranting ACEC management. Approximately one mile of river in tract No. 25 is designated for disposal by exchange to the State of Utah. Loss of Bureau management of this habitat constitutes irreversible negative consequences. Mitigation would include deleting the river portion of tract No. 25 from disposal during the EA/Land Report required for each disposal action.

Summary B

This alternative responds to the issue because resource and land-use conflicts on BLM lands near developing communities would be resolved by abandoning the existing BLM management in favor of transfer of land out of BLM administration.

This would make most BLM lands within city limits (5,007 acres) available to accommodate community growth. The exception is the Town of Rockville which annexed some of the Canaan Mountain WSA.

Other BLM lands (28,000 acres) in the "squeeze" area between wild and domestic land planning which are deteriorating from the activities listed in Issue 1 (a-j) would also be available for disposal, mostly to accommodate State of Utah land acquisition described in their General Management Plan for the Dixie Planning Unit (1986). The disposal recommendation would allow for exchange of important habitats which are difficult to manage for like habitat (acquisition) which could be managed. Thus, the irreversible commitment for disposals benefiting urban use would be mitigated with the recommendation to acquire acreage benefiting resource management purposes. In the long-term, this approach would be cumulatively beneficial to the human environment because it benefits both urban and natural resource management.

In the short term, the management concerns described in Issue 1 would continue until tracts are disposed. Incremental disposals would probably increase uses on remaining public lands tending to accelerate deterioration.

Recommendations for surface protection measures such as NSO categories, right-of-way avoidance areas, and ORV restrictions (and community education) would help mitigate the deterioration and also protect the important resources outside the urban fringes from becoming deteriorated.

The establishment of ACECs would assure both short-term and long-term management of special habitats and sensitive/critical resources. However, some areas with resource potential have not been included because of recognized growth related conflicts and a "minimal" approach to ACEC designation on some ACEC's located near communities. The ACECs are of sufficient size for effective BLM management under special management prescriptions developed for each area. However, the ACECs do not encompass all the resources needing special management.

Resource values identified for special management as ACECs conflict with three disposal tracts (Nos. 7, 21, and 25). Disposal without thorough mitigation would constitute high negative irreversible consequences for T&E plants, T&E animals, cultural resources, riparian values, important small game habitat. Mitigation would exclude the riparian zones from disposal and acquisition of three state sections of T&E plants habitat for the Red Bluff ACEC.

The designation of right-of-way corridors would be an irreversible commitment of resources. These corridors resolve management concerns (BLM and industrial) of routes for interstate utilities. Corridors also limit major utility visual intrusions to sacrifice areas.

Changing leasable mineral categories from closed to NSO would constitute an irretrievable commitment of resources on 45,880 acres. There would be no anticipated long or short-term impacts from this change because BLM retains full authority over exploration activities, most acreage is in low potential areas and there has been very low demand for exploration in the Resource Area.

The establishment of SRMAs would address Issue 2 because SRMAs would provide short and long-term recreation management direction and give priority to maintaining inventoried recreational opportunities within SRMAs.

The resolution of conflicts with watershed, riparian values, grazing, T&E habitat and VRM would be accomplished with activity level planning within the SRMA and ORV zoning throughout the Resource Area.

Social and economic consequences of alternative B would be significant from major changes in the lands and recreation management programs. Land disposals would pose high negative economic consequences by depressing the real estate market with a supply of potential sale tracts directly competing with state and private economic interests. Developing and managing four SRMAs will significantly increase BLM budgeting requirements. In the DRA, there will be an estimated ten-fold increase over the life of the plan. Current budgeting for recreational management is approxiamately $50,500 per year for salaries and maintenance of the two developed campgrounds and the extensive recreation area. However, the economic benefits from BLM provided recreation is substantial (refer to Table 2-9, p. 72) and far exceeds the cost of managing the recreational resource. Thus, long-term economic benefits to the service sector of the economy will be considered high from the developemnt of publicly recognized SRMAs.

Implementation of this alternative would result in no anticipated cumulative impacts not previously described.

ALTERNATIVE C - Impacts

Fluid Minerals

Fluid mineral leasing categories acreages proposed under Alternative C are:

Category 1 (Open)	Category 2 (Special Stipulations)	Category 3 (No Surface Occupancy)	Category 4 (Closed)
403,555	52,610	168,875	2,635

Under this alternative sensitive natural resources are protected by the assigning of categories. Changes between Alternative A and C are:

Category 1

Open

A	C	Change
515,620	403,555	-112,065

Category 2

Special Stipulations

A	C	Change
26,700	52,610	+25,910

Category 3

No Surface Occupancy

A	C	Change
40,850	168,875	+128,025

Category 4
Closed

A	C	Change
44,995	2,635	-42,360

The major change between Alternatives B and C is in the increase medium and high potential zone acreage having Category 3 stipulations. The acreage affected increased from 8,610 to 10,825 (2,215 acres). This represents an increase from 12 percent to 14 percent of the DRA. This represents a high negative impact to the fluids program. However, since exploration and development has been low and is expected to remain low, the overall impact is considered long-term negative moderate.

Mineral Materials

Restriction areas total 169,665 acres in Alternative C. Closure areas total 109,060 acres of ORV closures and mineral withdrawal. The critical resources protected by these closures and restriction areas would also be limiting under any required site specific analysis. The early identification of closures and restriction areas have positive benefits to users of materials by early identification of problems so that they may plan around these restrictions. This will save time and money for the BLM and users. Because of this, overall impact of the proposal is negligible to the mineral material resource.

Minerals (Locatable)

The difference between Alternatives B and C is the change in size of the proposed withdrawal on the Beaver Dam Slope which increased from 3,230 to 26,960 acres. The 26,960 acres is 10.3 percent of the total gold and silver potential zone which results in a high long-term negative impact for mineral development.

Rights-of-Way

The impacts of corridor designation remain identical for Alternative B and C - high long-term positive. Alternative C would have long-term medium negative impacts on the right-of-way program pertaining to the proliferation of distribution rights-of-way because of the large amount of acreage included in avoidance areas. Seventy five percent of public lands in the Resource Area are covered by VRM I or VRM II. This would not irreversably preclude the issuance of rights-of-way but would require stringent project design and mitigation measures in order to retain the characteristic landscape. Meeting these VRM objectives will result in increased costs and project delays. Rights-of-way could be issued in avoidance areas if feasible alternative routes are not available.

Lands

Impacts under this alternative are similar to Alternative B with the following exceptions.

Under Alternative C, 9,905 acres would be available for land disposals, which is 22,987 acres less than would be available under Alternative B and 3,300 acres less than Alternative A. Of the lands identified for disposal, 1,465 acres potentially meet FLPMA Section 203 sale criteria and 8,440 acres meet other disposal criteria. This alternative would accommodate some community needs on 1,400 acres of identified disposal within city limits of Ivins, St. George, Washington, Leeds, Hurricane, Virgin, LaVerkin and Toquerville, which is considered a moderate positive impact. However, this Alternative does not accommodate the needs of Santa Clara, Hildale, Rockville, and Springdale and would be a moderate negative impact on these communities because it does not meet their expansion needs as identified in Alternative B. When, and if, it becomes necessary to expand onto federal lands, the need would be accommodated through amending the RMP. This negative impact (and the need for plan amendment) would be mitigated by reinstating for disposal, those portions of deleted tracts (from Alternative B) without the important resource values.

BLM would continue long term management responsibilities on 3,600 acres within city limits that were identified for disposal in Alternative B. The BLM traditionally has not allocated management resources for public lands highly impacted by urban "type" uses. This would result in probable continued deterioration of public land in this setting (Issue 1.a,b,c, pg. 6). The significance of continued deterioration from a gross acreage figure is slight - only .5 percent of the total Resource Area would be impacted. However, the social implication of the impacts occurring in full view of the population centers is considered a moderate negative consequence.

Mitigation to resources would occur through the no surface occupancy oil and gas category and ORV restrictions on T&E plant habitat and riparian habitat. Also, special stipulations under fluid mineral Category 2 would help protect important acquifer areas and sensitive species habitat.

Under this alternative, 617,770 acres (98.5 percent) of public land in the Resource Area would remain in long-term public ownership unless criteria for transfer to another agency or organization is met. The criteria are found on page 100, Management Guidance Common to All Alternatives, Lands. This would have long-term high positive benefits to soil, water, vegetation, air, riparian, wildlife, T&E species and recreation because of the amount of land that would remain in public management.

This alternative presents fewer acres for sale than Alternative B thereby reducing economic impacts from direct competition with the State of Utah's land disposal program.

Withdrawals and Classification

In this alternative an additional 26,960 acres would be withdrawn on the Beaver Dam Mountains ACEC which has been determined to be a low positive long-term impact on the existing environment. Other impacts are as described for Alternative A (p. 164).

Forestry

Impacts to this resource would be the same as for Alternative B, p. 176. A low positive long-term impact would result from the annual sustained yield management.

Grazing Management

Impacts under this alternative are similar to Alternative B with the following differences. Fluid mineral leasing Categories 2 (52,610 acres), NSO (168,875 acres), and closed (2,635 acres) would provide some degree of protection from oil and gas development to livestock forage on 224,120 acres and would have a low positive impact.

Disposal of 9,905 acres would result in the long-term irretrievable loss of about 450 AUMs of forage. This is an improvement of 3,300 acres and 150 AUMs over Alternative A and 29,800 acres and 1,550 AUMs over Alternative C and would have a positive low impact on grazing.

Cultural

Impacts to cultural resources would be high long-term positive resulting from an increase of 715 acres in ACECs providing insitu protection.

Visual Resources

Under Alternative C, the VRM Class II goal of retaining the existing character of the landscape would be assigned to all landscapes with inventoried relative values of II and III. This proposal, in effect, elevates the value of the visual resource and responds to the overall high value of the DRA landscape. In the western desert and mountain portions of the DRA, on the Kolob Terrace, in view areas north of Utah Highway 9, and in certain areas surrounding the St. George urban area. The management objective would be to retain the landscape character and not allow surface modifications that would attract the attention of the casual viewer. In addition to preventing the irreversible loss of their inherent values and character, retention of all of the important landscapes of the DRA would have high long-term positive consequences for real estate values, the tourist industry, and dispersed recreation uses dependent on the visual resource.

The ACECs have the direct benefit of providing formal recognition and VRM I classification to all of the Canaan Mountain features unique to the Colorado Plateau physiographic province and the Red Mountain Cliffs. VRM I increases to 38,350 acres.

From a scenic and primitive perspective, Canaan Mountain is considered to be the most nationally significant BLM resource in the DRA. The values are comparable to those found in Zion National Park. Alternative C would provide an additional protective layer of ACEC designation to compliment the SRMA designation, primitive ROS zone, NSO category, ORV closure, and VRM Class I objectives. The cumulative benefit of these actions is considered long-term high.

Recreation Resources

Environmental consequences are the same as those described in Alternative B, pg. 178.

Soil, Water, Air, Riparian

This alternative is the same as Alternative B except the size of the ACECs increase to include all critical soils and riparian acreage recommended: Red Bluff plus 495 acres; Virgin River plus 220 acres. This represents a high positive impact.

Wildlife and Threatened and Endangered Species

Impacts to wildlife habitat under this alternative are similar to Alternative B with the following exceptions.

Under this alternative, at least 98.5 percent of public land in the Resource Area (619,000 acres) would remain in public ownership and available for wildlife habitat management, which is 24,500 more acres than would be available under Alternative B and 3,300 acres more than under Alternative A. All critical big game, riparian, and T&E habitat would be retained in public ownership. This would result in no impacts to big game and endangered species and only low negative impacts to other wildlife. Fluid mineral leasing would change to Category 3 designation on 26,900 acres of desert tortoise habitat north of St. George and on the Beaver Dam Slope which would provide protection to tortoise habitat year round. This acreage includes 1,400 acres with medium potential for oil and gas reserves. This designation would also provide additional protection to Gambel's quail habitat in those areas. Category 3 designation would ensure that tortoise and quail habitat including forage and dens as well as the animals themselves, would be protected from drilling activities, facilities, and roads associated with fluid mineral development. Without the additional protection, tortoises and their habitat would remain vulnerable to development. This population has declined to the point where its survival is dependent on the survival of each individual tortoise. These designations would result in high positive benefits to tortoise habitat. ACEC designations for Lower Virgin River (+495 acres), Santa Clara Landhill (+220 acres), Beaver Dam Slope (+23,730 acres), and Red Bluff (+12,600 acres) would increase by 25,705 acres and would provide additional surface protection from fluid mineral development (Category 3) and 3809 requirements for mineral development to desert tortoise, woundfin, bear-poppy, Virgin River chub, spinedace, and Gambel's quail habitat. The ACEC designation would be a high positive impact to wildlife, particularly endangered species and sensitive species. A mineral withdrawal would be initiated on the Beaver Dam Slope (26,960 acres) which would provide complete protection to wildlife habitat from mineral development. This action would particularly benefit the desert tortoise, (whose population is declining) and would be seriously impacted by any mineral development. A mineral withdrawal would be a high positive long-term benefit for this species.

Summary C

This alternative is the preferred alternative. It best addresses the planning issues and management concerns because:

1. It accommodates some of the community growth issue by providing 1,400 acres of BLM land within city limits of communities with highest growth rates and approximately 7,700 acres near the communities for exchanges, which would benefit both urban management and public land management.

   Alternative C provides approximately the same acreage for potential sale as the current situation. Thus, there will be no anticipated economic change from competition with the state and private sectors of the real estate market.

2. It maintains all important resource values in public ownership, regardless of management difficulty.

3. It provides for special management on 100,080 acres of ACECs and 153,950 acres of important recreation opportunities.

4. It provides various levels of surface protection for all riparian zones, sensitive habitat, important water production zones, visual resources, and T&E habitat not included in ACEC or SRMAs.

5. It accommodates usual and customary fluid mineral development on 90 percent of the medium and high potential areas.

6. It provides for locatable mining on 80 percent of the medium and high potential areas.

7. It provides for saleable mineral materials (with site specific environmental review) on over 80 percent of the Resource Area.

8. It provides for two interstate utility corridors.

9. It clearly defines right-of-way avoidance areas to facilitate utility planning and reduce visual intrusions.

10. It recognizes that public lands are not necessarily needed for human occupancy because of abundant state and private lands already planned for income management.

11. It makes commitment to long-term management of 27,000 acres of difficult-to-manage property near and within city limits, with important resource values until the next planning cycle.

12. It makes commitment to non-disposal of 617,770 acres of public lands.

13. The economic consequences to the service sector of the economy from the establishment of SRMAs is considered highly beneficial for the same reasons discussed under the summary for Alternative B.

14. There would be irreversible cumulative commitment of 9,905 acres of disposal parcels with high realty values and no identified important resource values. This commitment would be more than compensated with cumulative acquisition of 39,565 acres of private and state property having important resource values.

15. There would be irreversible commitment of resources along the two utility corridors which would be mitigated by designation of two scenic ACECs.

16. There would be irreversible commitment of resources with fluid mineral category changes from "closed" to "NSO" which would result in no anticipated environmental consequences because of low mineral potential and low demand for exploration.

There would be no anticipated cumulative impacts or irreversible commitment of resources beyond those discussed in this alternative.

CHAPTER 5

PUBLIC PARTICIPATION

This document has been prepared by the DRA and Cedar City District Offices of the BLM.

Initiation of the planning process began in January 1986 with internal review of the existing MFP. It was determined the MFP was inadequate to cope with resource problems resulting from rapid county population growth. Management review of resource problems identified three preliminary planning issues and many management concerns to be addressed in an RMP. These problems and the support needs to do a RMP were developed into a Preplan Analysis document.

A Federal Register notice was published on November 14, 1986 announcing preparation of this RMP, introducing the preliminary issues to be addressed, preliminary planning criteria, preliminary alternatives, inviting public participation in planning and nominations for ACECs.

Press releases and several hundred invitations to interested parties of record were sent on November 14, 1986 soliciting public participation in the planning process. Copies of the Preplan Analysis were sent to interested parties responding to these letters.

Approximately one year was spent in data gathering and field inventories in order to prepare the MSA. Priority was given to collecting information relating to the planning issues and management concerns.

During this period, formal and informal meetings were held with Utah State Land Board officials and county and city community leaders in order to identify community and state land needs and potential areas of conflict between land uses. Data input was solicited from special interest groups regarding specific nominations for ACECs, right-of-way corridors, and possible sites for large scale water reservoirs. One ACEC nomination was received from the Nature Conservancy and two corridors were identified by the utility industry. The Washington County Water Conservancy District could not identify specific site needs for reservoirs on BLM lands. Thus, this issue was dropped from further planning during the MSA.

The nine-step planning process outlined in Chapter 1 requires the opportunity for public input throughout the process in order to continually refine the issues and analysis. The following table outlines the key contacts through publication of the draft RMP.

KEY EVENTS DIXIE RMP

01/30/86	First meeting with Cedar City District Office Planning and Economic Coordination staff concerning development of Dixie RMP.

02/05/86	Second meeting with Planning and Economic Coordination staff to determine RMP inventory needs, preplan needs, commitment to Geographic Information System analysis.
02/24/86	Third meeting with Planning and Economic Coordination staff and commitment to "get started."
03/17/86	First meeting with all participating staff and Cedar City District Office Planning and Economic Coordination staff to screen resource conflicts and inventory needs.
04/04/86	District Planning and Economic Coordination staff, State Office (Milt Rupp) and staff meet to discuss realty/right-of-way needs for RMP.
05/05/86	Meeting with State Office (Steve Howard), Planning and Economic Coordination staff, all staff to discuss preplanning.
09/08/86	Preplan analysis submitted to District Office for review.
10/04/86	News release on RMP and preliminary issues.
10/09/88	Meeting with State Office range coordinator (Ken Boyer) regarding range program needs for RMP with existing Hot Desert EIS.
10/14/88	Federal Register notice published and letters sent to 222 persons and groups on record.
10/23/86	Preplan signed by State Director.
12/05/88	Area Manager's concept of plan developed and signed by District Manager.
12/11/86	Presentation to Cedar City District Advisory Council.
02/09/87	Meeting with Washington Office (Frosty Littrell) and State Office (Steve Howard) to receive program guidance on developing MSA/RMP (Frosty emphasizes the carrying forward of valid existing management from MFP to RMP alternatives).
02/19/87	News release.
03/23/87	Scoping meeting with Southern Utah Wilderness Association.
04/14/87	Meeting with Resource Development Coordinating Committee (State of Utah) in Salt Lake City to present summary of identified issues.

04/20/87	Coordination with Woundfin Recovery Team meeting (Hedges).
08/10/87	Scoping meeting in Salt Lake City with Southern Utah Wilderness Alliance, Wilderness Society, Sierra Club, National Parks and Conservation Association.
08/17/87	Coordination meeting with Utah Division of Wildlife Resources.
02/16/88	Area of Critical Environmental Concern meeting with District Manager (presented all nominations).
03/12/88	News release.
03/12/88	Presentation to Cedar City District Advisory Council.
03/20/88	News release.
04/7-8/88	Two day Resource Development Coordinating Committee tour.
04/10/88	News article.
04/31/88	Open house (radio announcement and invitation to County Planner and County Commission).
05/12/88	Alternative meeting with Steve Howard/Area Manager/District Manager
05/20/88	Bureau of Land Management/Division of Wildlife Resources annual meeting with RMP overview.
06/12/88	The MSA completed by team for District Manager review.
07/12/88	Alternative meeting with new Associate District Manager
11/21/88	Alternative presentation to State Director
12/02/88	Alternative presentation to Multiple Use Advisory Board
12/09/88	Draft RMP/EIS to District Office for review.
12/19/88	District Manager presentation to Resource Development Coordinating Committee (State of Utah)

PLANNING CONSISTENCY

All actions analyzed in this RMP/EIS are considered in compliance with the land use plans and controls of other agencies having jurisdiction in or near the planning area.

CONSULTATION AND COORDINATION

Opportunities for consultation and coordination will be provided to the following agencies during the public review period:

FEDERAL AND STATE AGENCIES

U. S. Department of Agriculture
Dixie National Forest
Soil Conservation Service
U. S. Department of Interior
Cedar City District, Bureau of Land Management
Las Vegas District, Bureau of Land Management
Arizona Strip District, Bureau of Land Management
Bureau of Indian Affairs
U. S. Fish and Wildlife Service
National Park Service
Zion National Park
Environmental Protection Agency
Department of the Air Force
State of Utah
Clearinghouse
Department of Natural Resources and Energy
Division of Water Resources
Division of Wildlife Resources
Division of Lands and Forestry
Divison of Environmental Health
Geological and Mineralogical Survey
Division of State History
Department of Community and Economic Development
Office of the State Planning Coordinator

LOCAL GOVERNMENTS

Five County Association of Governments
Washington County Commission

INDIAN TRIBES

Shivwits Indian Band of Washington County

DISTRIBUTION

Copies of this document have been sent specifically to the following agencies, organizations, businesses, and interest groups. In addition, copies have been made available to individuals.

FEDERAL AGENCIES

Department of Agriculture
  Agricultural Stabilization and Conservation Service
Forest Service
  Dixie National Forest
Soil Conservation Service

Department of the Interior
  Geological Survey
  Fish and Wildlife Service
  Bureau of Mines
  National Park Service
    Zion National Park
  Bureau of Reclamation
Department of Commerce
Advisory Council on Historic Preservation
Environmental Protection Agency
Officer of the Solicitor
Headquarters -U.S. LEVX
Department of Energy
Pentagon (Air Force)
Army Corp. of Engineers

UTAH STATE AGENCIES

Clearinghouse
Department of Natural Resources
Division of Water Resources
Division of Wildlife Resources
Division of Lands
Division of Oil, Gas, and Mining

LOCAL AGENCIES

Washington County Commission

INDIAN TRIBES

Paiute Indian Tribe

NONGOVERNMENT ORGANIZATIONS

Audubon Society
Cave Research Foundation
Common Cause
Council on Utah Resources
Defenders of the Outdoor Heritage
Defenders of Wildlife
Friends of the Earth
League of Women Voters
National Council of Public Land Users
National Parks and Recreation Association
National Speleological Society
National Stock Grower's Association
National Wildlife Federation
National Woolgrower's Association
Natural Resources Defense Council
Nature Conservancy
Pro-Utah, Inc.
Public Lands Council
Sierra Club
Society for Range Management
Southern Utah Wilderness Alliance
Source
The Wilderness Society
The Wildlife Society
Utah Cattlemen's Association

Utah Council, Trout Unlimited
Utah Farm Bureau
Utah Sportsmen Association
Utah Archaeological Society
Utah Gem and Mineral Society
Utah Water Pollution Control Association
Utah Wilderness Association
Utah Wildlife and Outdoor Recreation Federation
Utah Woolgrower's Association

CONGRESSIONAL

Utah Delegation

INTERESTED/AFFECTED INDIVIDUALS

Permittees
Private Landowners

EIS AVAILABILITY

Copies of this Draft RMP/EIS will be available for public inspection at the BLM offices listed below:

Washington Office of Public Affairs
18th and C Street, N.W.
Washington, D.C. 20240

Utah State Office
324 South State
Salt Lake City, Utah 84111-2303
Phone (801) 524-4227

Cedar City District Office
176 East DL Sargent Dr.
Cedar City, Utah 84720
Phone (801) 586-2401

Dixie Resource Area
225 North Bluff St.
St. George, Utah 84770
Phone (801) 673-4654

EIS Team	Title	Assignment	Education	Years of Professional Experience
Gordon Staker	District Manager	Supervision and Management	B.S., Range Science	29
Ron Montagna	Associate District Manager	Supervision and Management	B.S. Outdoor Recreation	15
Frank Rowley	(transferred) Area Manager	Supervision and Management	B.S., Range Science	22
Linda Barwick	Clerk-Typist	Word Processing	–	15
Laurie Gonzales	Range Clerk	Editor	–	10
Pete Wilkins	District Planning Coordinator	Planning Coordinator/ Technical Coordinator/ GIS	B.S. Natural Resources	10
David Brine	Supervisory Environmental Specialist	Team Leader	M.S. Wildlife Bio/ Land Use Planning	17
Larry Royer	Outdoor Recreation Planner	Recreation/VRM	M.S. Natural Resources	25
Ron Hooper	Hydrologist	Minerals, Soil, Water Air, Riparian	B.S. Watershed Management	13
Steve Hedges	Wildlife Biologist	Wildlife, T&E, Forestry, Range	B.S. Wildlife Biology	16
Dale Ross	Realty Specialist	Lands, Rights-of-Way, Fire, Transportation	B.S. Range Management	25
SUPPORT				
Jack Scheffey	GIS Coordinator (Utah State Office)	GIS	B.S. Forestry/ Wildlife Management	
Carla Garrison	Cartographer (Utah State Office)	Cartographic	B.S. Anthropology/ Cartography	9
Scott Spooner	Geologist	Geology, Topography, Minerals	B.S. Geology	7
Paul Carter	Geologist	Minerals	Phd. Bio/Geo Chemistry	15
Bob Douglas	Wildlife Biologist	Wildlife	B.S. Botany	15
Duncan MacDonald	Supervisory Range Conservationist	Range	B.S. Range Science	25
Max Hodson	Soil Scientist	Soils	B.S. Agronomy (Soils)	28
Gardiner Dalley	Archaeologist	Cultural Resources	M.A. Anthropology	17
Ron Burkey	Fire Management Officer	Fire	B.S. Forestry	18
Don Stucker	Civil Engineer	Transportation	B.S. Civil Engineering/ Economics	28
Esther Wasden	(Retired) Realty Specialist	Rights-of-Way, Lands	–	28
Paul Boos	(Transferred) Outdoor Recreation Specialist	Recreation/VRM	M.F. Forest Recreation	17
Jay Carlson	(Transferred) Socio/Economics	Economics	M.S. Forestry/ Economics	12

APPENDIX

PLANNING TEAM NOMINATIONS FOR ACEC CONSIDERATION
February 16, 1988

Resource Value	Location	Decision by Area Manager and District Manager to Consider in RMP YES	NO
Cultural	Santa Clara River (Gunlock-Shivwits)	x	
	Santa Clara River (Atkinville-Wilderness Area)	x	
	Santa Clara River (Land Hill)	x	
	Little Creek Mountain (Top)	x	
	Cedar Pockets/Bulldog Pass		The archaeology in this location would be adequately protected by a designated right-of-way corridor which provides for full mitigation should any sites be disturbed.
Fish and Wildlife Resources	Virgin River (All) (partial Atkinville to Wilderness area for woundfin minnow)	(x)	BLM manages less than 10% of the Virgin River system. This nomination modified to the section of river BLM does manage.
	City Creek (desert tortoise)	x	
	Red Cliffs (peregrine falcon)		This location is primarily managed for recreation use. The falcon selected this site for nesting. There appears to be no conflict.
	Beaver Dam Slope (includes Desert Woodbury (study area). (desert tortoise)	x	
	Pintura (critical deer winter range)		This deer range does not meet the relevance and importance criteria.
	Beaver Dam Wash		Beaver Dam Wash can be adequately protected with oil & gas categories such as NSO or special stipulations.
	Santa Clara River (All) (two partials)	(x)	BLM manages less than 10% of the Santa Clara River system. This nomination modified to include two sections of river BLM can manage effectively.
	Red Bluff (T&E plant)	x	
	Webb Hill (T&E plant)		Webb Hill T&E plant population already protected by ORV closure. Bear Claw Poppy species will be protected with ACEC nominations on Red Bluff and Warner Ridge.

	Warner Ridge (T&E plant)	x	
	Shinob Kibe (T&E plant)		Bear Claw Poppy species will be protected with ACEC nominations on Red Bluff and Warner Ridge. Plant population on Shinob Kibe is not large enough to warrant a separate nomination.
Natural Systems	White Hills (critical watershed)	x	
	Warner Ridge (critical watershed)	x	
Scenic	Virgin to Springdale Corridor		BLM manages insufficient amount of foreground landscape along this corridor.
	(Modified to Canaan Moutain cliff face and/or top)	x	
	Black Ridge		This scenery is not regionally unique. VRM II and SRMA considered adequate protection.
	Red Mountain Cliff Face	x	
Fish and Wildlife	Nature Conservancy Nomination Enlarged Desert Woodbury Area (desert tortoise)	x	

APPENDIX

Land Disposal Legal Descriptions Table

Parcel No.	Township	Range	Section	Subdivision		Acres
1	T. 40 S.	R. 19 W.	Sec. 17	E½NE¼		80.00
				N½SW¼NE¼		20.00
				NE¼SW¼SW¼NE¼		2.50
				SE¼SW¼NE¼		10.00
					Total	112.50
2	T. 40 S.	R. 19 W.	Sec. 17	S½SE¼		80.00
				S½N½SE¼		40.00
					Total	120.00
3	T. 39 S.	R. 16 W.	Sec. 19	SW¼SW¼SE¼NE¼		2.5
				NW¼NW¼NE¼SE¼		2.5
					Total	5.00
4	T. 40 S.	R. 17 W.	Sec. 22	SE¼NW¼		40.00
					Total	40.00
5	T. 40 S.	R. 17 W.	Sec. 11	SE¼SE¼		40.00
			12	SW¼NE¼		40.00
				SE¼NW¼		40.00
				SW¼		160.00
				NW¼SE¼		40.00
			13	W½		320.00
				NW¼SE¼		40.00
			14	E½NE¼		80.00
				SE¼		160.00
			22	E½SE¼		80.00
			23	E½		320.00
				SE¼NW¼		40.00
				SW¼		160.00
			24	S½NE¼		80.00
				NW¼		160.00
				N½SW¼		80.00
				N½SE¼		80.00
			26	N½NW¼		80.00
				NW¼NE¼		40.00
			27	NE¼NE¼		40.00
					Total	2080.00
6	T. 42 S.	R. 17 W.	Sec. 1	Lot 1		40.10
					Total	40.10
7	T. 42 S.	R. 17 W.	Sec. 1	Lot 7		40.13
				W½SE¼		80.00
				SW¼NE¼		40.00
					Total	160.13
8	T. 39 S.	R. 16 W.	Sec. 28	NW¼NE¼		40.00
					Total	40.00

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
9	T. 39 S.	R. 16 W.	Sec. 28	E½NW¼SW¼	20.00
				E½W½NW¼SW¼	10.00
				NE¼NW¼SW¼SW¼	2.50
				Total	32.50
10	T. 40 S.	R. 16 W.	Sec. 5	NW¼SW¼	40.00
				Total	40.00
11	T. 41 S.	R. 16 W.	Sec. 31	NE¼NE¼	40.00
				Total	40.00
13	T. 42 S.	R. 16 W.	Sec. 3	Lot 1	39.28
				SE¼NE¼	40.00
				NE¼SE¼	40.00
				Total	119.28
17	T. 42 S.	R. 16 W.	Sec. 21	NW¼NE¼	40.00
				S½NE¼	80.00
				Total	120.00
18	T. 42 S.	R. 16 W.	Sec. 25	Lot 7	41.24
				Lot 8	41.34
			Sec. 26	Lot 4	39.87
				Total	122.45
19	T. 42 S.	R. 16 W.	Sec. 35	S½SE¼NW¼	20.00
				W½NW¼SE¼NW¼	5.00
				Total	25.00
20	T. 43 S.	R. 16 W.	Sec. 1	Lot 14	26.97
				Lot 15	30.68
				Total	57.65
21	T. 42 S.	R. 16 W.	Sec. 33	All	640.00
	T. 43 S.	R. 16 W.	Sec. 4	Lot 1	38.29
				Lot 2	38.48
				Lot 3	38.66
				Lot 4	38.85
				S½NW¼	80.00
				SW¼	160.00
			Sec. 9	All	640.00
				Total	1674.28
22	T. 43 S.	R. 16 W.	Sec. 22	Lot 13	0.42
				14	31.84
				15	19.60
				16	4.03
				17	4.49
				18	25.86

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
22	T. 43 S.	R. 16 W.	Sec. 22	19	40.04
				20	15.36
				Lot 21	16.37
				Lot 22	37.53
				W½NW¼	80.00
				SW¼SE¼	40.00
				Total	315.54
23	T. 43 S.	R. 16 W.	Sec. 13	NE¼SE¼	40.00
				Lot 10	0.67
				Lot 11	38.49
				Total	79.16
24	T. 43 S.	R. 16 W.	Sec. 13	SE¼SW¼	40.00
				Total	40.00
25	T. 43 S.	R. 16 W.	Sec. 27	E½	320.00
				SW¼	160.00
				S½NW¼	80.00
				NE¼NW¼	40.00
				Lot 3	38.99
			Sec. 28	Lot 13	37.14
				Lot 14	8.76
				Lot 15	26.31
				Lot 16	1.97
				Lot 17	27.95
				Lot 18	39.64
				Lot 19	8.52
				Lot 20	11.81
				Lot 21	2.15
				Lot 22	38.93
				Lot 23	39.50
				Lot 24	39.95
				SW¼	160.00
				W½NW¼	80.00
				S½SE¼	80.00
			Sec. 33	Lot 1	15.48
				Lot 2	15.45
				Lot 3	15.41
				Lot 4	15.38
				N½	320.00
			Sec. 34	N½	320.00
				Lot 1	15.59
				Lot 2	15.56
				Lot 3	15.54
				Lot 4	15.51
				Total	2005.54

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
26	T. 41 S.	R. 15 W.	Sec. 34	NW¼		160.00
					Total	160.00
27a	T. 42 S.	R. 14 W.	Sec. 17	NW¼NW¼NW¼		10.00
			Sec. 18	E½		320.00
				Lot 7		40.00
				Lot 11		40.00
				Lot 12		40.00
					Total	450.00
27b	T. 42 S.	R. 14 W.	Sec. 19	Lot 2		27.44
				Lot 3		12.69
					Total	40.13
28	T. 42 S.	R. 15 W.	Sec. 24	NE¼		160.00
				E½NW¼		80.00
					Total	240.00
29	T. 42 S.	R. 15 W.	Sec. 24	E½SW¼		80.00
				NW¼SE¼		40.00
					Total	120.00
30	T. 42 S.	R. 15 W.	Sec. 25	SE¼NW¼		40.00
				S½NE¼		80.00
				SE¼		160.00
					Total	280.00
31	T. 43 S.	R. 15 W.	Sec. 7	SE¼NW¼		40.00
				S½NE¼		80.00
				SE¼		160.00
				E½SW¼		80.00
				Lot 4		47.91
				Lot 5		1.81
				Lot 6		45.75
			Sec. 8	SW¼NW¼		40.00
				N½NW¼SW¼		20.00
				Lot 1		18.67
					Total	534.14
32	T. 43 S.	R. 15 W.	Sec. 1	Lot 1		40.00
				Lot 2		40.00
				Lot 4		42.75
				Lot 5		42.75
				Lot 6		42.04

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
32	T. 43 S.	R. 15 W.	Sec. 1	Lot 7	41.33
				Lot 10	41.21
				Lot 11	40.73
				Lot 12	40.24
				Lot 13	40.24
				Lot 14	40.73
			Sec. 12	E½	320.00
			Sec. 13	E½	320.00
				Total	1092.02
33	T. 43 S.	R. 15 W.	Sec. 13	E½W½	160.00
				Total	160.00
34	T. 42 S.	R. 15 W.	Sec. 20	NW¼SW¼	40.00
				Total	40.00
35	T. 43 S.	R. 15 W.	Sec. 21	N½	320.00
				Total	320.00
36	T. 43 S.	R. 15 W.	Sec. 24	W½NW¼	80.00
				Total	80.00
37	T. 43 S.	R. 15 W.	Sec. 24	NE¼	160.00
				Total	160.00
38	T. 43 S.	R. 15 W.	Sec. 27	W½	320.00
			Sec. 34	NW¼	160.00
				Lot 3	15.94
				Lot 4	15.90
				Total	511.84
39	T. 43 S.,	R. 15 W.	Sec. 25	W½	320.00
				NE¼	160.00
				W½SE¼	80.00
				NE¼SE¼	40.00
				N½SE¼SE¼	20.00
				SW¼SE¼SE¼	10.00
				N½SE¼SE¼SE¼	5.00
			Sec. 26	All	640.00
			Sec. 27	E½	320.00
			Sec. 34	NE¼	320.00
				Lot 1	16.02
				Lot 2	15.98
			Sec. 35	N½	320.00
				Lot 1	16.00
				Lot 2	16.02
				Lot 3	16.02
				Lot 4	16.04
				Total	2331.08

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
40	T. 41 S.	R. 14 W.	Sec. 12	Lot 17		5.00
				Lot 28		33.39
					Total	38.39
42	T. 42 S.	R. 14 W.	Sec. 3	Lot 2		40.00
				Lot 3		40.00
				Lot 8		31.25
					Total	111.25
43	T. 42 S.	R. 14 W.	Sec. 3	Lot 1		40.00
				Lot 4		49.75
				Lot 5		37.55
				Lot 6		31.63
				Lot 7		31.36
				Lot 9		41.05
				Lot 10		41.24
				Lot 11		41.46
				Lot 12		48.63
				Lot 13		48.10
				Lot 14		41.46
			Sec. 4	Lot 6		41.09
				Lot 7		30.73
				Lot 8		30.71
			Sec. 9	W½NE¼		80.00
				E½NW¼		80.00
				SE¼		160.00
				E½SW¼		80.00
				SE¼SW¼SW¼		10.00
			Sec. 10	Lot 1		37.05
				Lot 2		40.00
				Lot 3		39.35
				Lot 4		13.11
				Lot 5		20.57
				Lot 6		19.06
				Lot 7		15.17
				Lot 8		40.00
				Lot 9		26.03
				Lot 10		9.49
				Lot 11		38.06
				SE¼NW¼		40.00
				W½SW¼		80.00
				NE¼SE¼		40.00
			Sec. 11	Lot 2		7.06
			Sec. 15	Lot 2		33.68
					Total	1463.39

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
44	T. 42 S.	R. 14 W.	Sec. 8	N½SE¼NE¼	20.00
				SW¼SE¼NE¼	10.00
				N½NW¼SE¼	20.00
				SW¼NW¼SE¼	10.00
				N½SE¼SW¼	20.00
				SW¼SE¼SW¼	10.00
			Sec. 9	N½NW¼NW¼	20.00
				SW¼NW¼NW¼	10.00
				Total	120.00
45	T. 42 S.	R. 14 W.	Sec. 17	SE¼NE¼	40.00
				SE¼NE¼NE¼	10.00
				E½SW¼NE¼	20.00
				SW¼SW¼NE¼	10.00
				Total	80.00
46	T. 42 S.	R. 14 W.	Sec. 15	SW¼NE¼	40.00
				Total	40.00
47	T. 42 S.	R. 14 W.	Sec. 8	SE¼SE¼NE¼	10.00
				NE¼SE¼	40.00
				SE¼NW¼SE¼	10.00
				S½SE¼	80.00
				SE¼SE¼SW¼	10.00
			Sec. 9	SE¼NW¼NW¼	10.00
				SW¼NW¼	40.00
				NW¼SW¼	40.00
				N½SW¼SW¼	20.00
				SW¼SW¼SW¼	10.00
			Sec. 17	N½N½NE¼	40.00
				SW¼NE¼NE¼	10.00
				S½NW¼NE¼	20.00
				NW¼SW¼NE¼	10.00
				E½NW¼	80.00
				E½W½NW¼	40.00
				SW¼NW¼NW¼	10.00
				W½SW¼NW¼	20.00
				Total	500.00
48	T. 41 S.	R. 14 W.	Sec. 13	SE¼NE¼	40.00
				E½SE¼	80.00
				SW¼SE¼	40.00
				S½SW¼	80.00
			Sec. 14	SE¼SE¼(part E of Freeway)	30.00
			Sec. 23	E½NE¼	80.00
				NW¼NE¼(part E of Freeway)	5.00
				N½SE¼SE¼	20.00
				SE¼SE¼SE¼	10.00
				NE¼SE¼	40.00

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
48	T. 41 S.	R. 14 W.	Sec. 24	All	360.00
			Sec. 25	Lot 1	12.31
				Lot 2	12.92
				Lot 3	14.03
				Lot 4	15.13
				Lot 5 (N½ of Lot)	20.00
				Lot 6	40.00
				Lot 7	40.00
				Lot 8	41.65
				Lot 9	41.50
				Lot 10	41.35
				N½SE¼NW¼	20.00
			Sec. 25	SE¼SE¼NW¼	10.00
				E½NE¼SW¼	20.00
				SW¼NE¼	40.00
				SE¼SW¼	40.00
				W½SE¼	80.00
					1273.89
50	T. 38 S.	R. 13 W.	Sec. 21	SE¼NW¼	40.00
				Total	40.00
51	T. 40 S.	R. 13 W.	Sec. 31	Lot 1	56.90
				Lot 2	56.90
				Lot 3	56.90
				Lot 4	54.62
				NE¼SW¼	40.00
				E½NW¼	80.00
				NE¼	160.00
	T. 41 S.	R. 13 W.	Sec. 6	NW¼NW¼	40.00
				Total	545.32
52	T. 41 S.	R. 13 W.	Sec. 5	Lot 1	39.68
				Lot 5	42.17
				Lot 6	43.55
				Lot 7	43.00
				Total	168.40
53	T. 40 S.	R. 13 W.	Sec. 27	S½SW¼	80.00
			Sec. 28	E½SE¼(part E of Freeway)	40.00
			Sec. 33	S½NE¼	80.00
				NE¼NE¼	40.00
				SE¼NW¼(part E of Freeway)	25.00
				NW¼SW¼(part E of Freeway)	12.50
				NE¼SW¼	40.00

Note: Corrections to 48 and legal descriptions for 48a, 48b, 48c and 48d are held up pending results of new survey being completed by cadastral survey.

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
53	T. 41 S.	R. 13 W.	Sec. 4	N½SE¼	80.00
				Lot 1	33.56
				Lot 2	38.38
				Lot 3	38.18
				Lot 2	39.68
				Lot 3	39.73
				S½N½	160.00
				N½S½	160.00
				S½SW¼	80.00
			Sec. 5	Lot 8	43.20
				Lot 9	43.90
				Total	1074.13
54	T. 40 S.	R. 13 W.	Sec. 34	N½SE¼	80.00
				SE¼SE¼	40.00
				Total	120.00
55	T. 40 S.	R. 13 W.	Sec. 35	E½SE¼	80.00
				Total	80.00
56	T. 41 S.	R. 13 W.	Sec. 1	Lot 3	43.50
				Lot 4	43.13
				S½NW¼	80.00
				NE¼SW¼	40.00
				Total	206.63
57	T. 41 S.	R. 13 W.	Sec. 8	Lot 10	44.58
				Total	44.58
58	T. 41 S.	R. 13 W.	Sec. 8	Lot 9	47.36
				Lot 3	47.50
				Total	94.86
59	T. 41 S.	R. 13 W.	Sec. 8	Lot 12	47.81
			Sec. 9	Lot 3	40.00
				Lot 4	37.45
				Lot 5	38.85
				Lot 6	40.00
				Lot 8	13.78
				Lot 9	38.22
				Lot 10	38.60
				Lot 11	14.04
				NE¼	160.00
				SW¼	160.00
				W½SE¼	80.00
				Total	708.75

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
60	T. 41 S.	R. 13 W.	Sec. 10	SE¼SW¼		40.00
			Sec. 15	W½W½		160.00
				E½NW¼		80.00
				NE¼SW¼		40.00
					Total	320.00
61	T. 41 S.	R. 13 W.	Sec. 12	E½SW¼		80.00
					Total	80.00
64	T. 41 S.	R. 13 W.	Sec. 29	S½		320.00
					Total	320.00
68	T. 41 S.	R. 13 W.	Sec. 28	NW¼SE¼		40.00
					Total	40.00
69	T. 41 S.	R. 13 W.	Sec. 25	NW¼NE¼		40.00
					Total	40.00
70	T. 42 S.	R. 13 W.	Sec. 11	Lot 1		40.91
					Total	40.91
71	T. 42 S.	R. 13 W.	Sec. 11	Lot 3		41.95
					Total	41.95
72	T. 42 S.	R. 13 W.	Sec. 8	NE¼SE¼		40.00
					Total	40.00
73	T. 42 S.	R. 13 W.	Sec. 10	SE¼SE¼		40.00
					Total	40.00
74	T. 42 S.	R. 13 W.	Sec. 28	NW¼NW¼		40.00
					Total	40.00
75	T. 42 S.	R. 13 W.	Sec. 28	NW¼SE¼		40.00
					Total	40.00
76	T. 42 S.	R. 13 W.	Sec. 28	S½SW¼		80.00
					Total	80.00
77	T. 41 S.	R. 12 W.	Sec. 19	E½E½		160.00
			Sec. 20	N½		320.00
				N½S½		160.00
				SE¼SW¼		40.00
			Sec. 21	N½		320.00
			Sec. 22	N½NW¼		80.00
				NW¼NE¼		40.00
					Total	1120.00

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
78	T. 41 S.	R. 12 W	Sec. 23	N½NW¼		80.00
				NW¼NE¼		40.00
					Total	120.00
79	T. 41 S.	R. 12 W.	Sec. 22	SE¼NW¼		40.00
					Total	40.00
80	T. 41 S.	R. 12 W.	Sec. 19	Lot 4		40.21
			Sec. 30	Lot 1		40.25
					Total	80.46
81	T. 41 S.	R. 12 W.	Sec. 28	N½NE¼		80.00
					Total	80.00
82	T. 43 S.	R. 12 W.	Sec. 33	Lot 3		38.64
				Lot 4		38.78
				NW¼		160.00
				W½NE¼		80.00
					Total	317.42
83	T. 43 S.	R. 12 W.	Sec. 34	Lot 3		38.10
				Lot 4		38.21
					Total	76.31
84	T. 40 S.	R. 11 W.	Sec. 19	E½SW¼		80.00
					Total	80.00
85	T. 40 S.	R. 11 W.	Sec. 29	W½SW¼		80.00
				SE¼SW¼		40.00
				SW¼SE¼		40.00
			Sec. 30	E½SE¼		80.00
					Total	240.00
86	T. 41 S.	R. 11 W.	Sec. 19	NE¼SW¼		40.00
					Total	40.00
87	T. 41 S.	R. 11 W.	Sec. 29	SW¼		160.00
			Sec. 30	Lot 2		39.91
				Lot 3		39.95
				E½SW¼		80.00
				SE¼		160.00
			Sec. 31	NE¼NE¼		40.00
					Total	519.86
88	T. 42 S.	R. 11 W.	Sec. 3	Lot 3		36.83
				Lot 4		36.83
					Total	73.66

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
89	T. 42 S.	R. 11 W.	Sec. 1	Lot 1		37.36
				Lot 2		37.26
				Lot 3		37.17
				Lot 4		37.08
				Lot 5		40.48
				Lot 6		40.48
				Lot 7		40.48
				Lot 8		40.48
					Total	310.79
90	T. 42 S.	R. 11 W.	Sec. 20	NW¼SW¼		40.00
					Total	40.00
91	T. 42 S.	R. 11 W.	Sec. 31	E½E½		160.00
				SW¼SE¼		40.00
					Total	200.00
92	T. 43 S.	R. 11 W.	Sec. 7	SE¼NE¼		40.00
				N½SE¼		80.00
				SE¼SE¼		40.00
			Sec. 8	W½W½		160.00
			Sec. 17	NW¼NW¼		40.00
			Sec. 18	NE¼NE¼		40.00
					Total	400.00
93	T. 43 S.	R. 11 W.	Sec. 11	S½SW¼		80.00
			Sec. 14	N½NW¼		80.00
				SW¼NW¼		40.00
			Sec. 15	E½E½		160.00
					Total	360.00
94	T. 43 S.	R. 11 W.	Sec. 31	Lot 1		40.00
				Lot 2		40.00
				Lot 3		25.01
				Lot 4		25.10
				Lot 9		37.33
				Lot 10		37.36
				Lot 11		23.55
					Total	228.35
95	T. 43 S.	R. 11 W.	Sec. 33	Lot 3		37.42
				Lot 4		37.23
					Total	74.65
96	T. 43 S.	R. 11 W.	Sec. 35	NE¼		160.00
				NE¼NW¼		40.00
				S½NW¼		80.00

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
96	T. 43 S.	R. 11 W.	Sec. 35	Lot 1	37.94
				Lot 2	38.18
				Total	356.12
97	T. 41 S.	R. 10 W.	Sec. 33	SW¼	160.00
				S½NW¼	80.00
				NE¼NW¼	40.00
				Total	280.00
98	T. 42 S.	R. 10 W.	Sec. 5	Lot 1	40.00
				Lot 2	40.00
				S½NE¼	80.00
				Total	160.00
99	T. 42 S.	R. 10 W.	Sec. 5	SE¼NW¼	40.00
				Total	40.00
100	T. 42 S.	R. 10 W.	Sec. 3	N½SW¼	80.00
				Total	80.00
101	T. 42 S.	R. 10 W.	Sec. 6	NE¼SW¼	40.00
				Total	40.00
102	T. 42 S.	R. 10 W.	Sec. 5	S½SW¼	80.00
				Total	80.00
103	T. 43 S.	R. 10 W.	Sec. 7	SE¼	160.00
			Sec. 8	S½N½SW¼	40.00
				S½SW¼	80.00
				SW¼SE¼	40.00
			Sec. 17	N½NW¼	80.00
				NW¼NE¼	40.00
				SW¼NW¼	40.00
			Sec. 18	Lot 1	37.02
				Lot 2	37.08
				NE¼	160.00
				E½NW¼	80.00
	T. 43 S.	R. 11 W.	Sec. 13	NE¼	160.00
				Total	954.10
104	T. 43 S.	R. 10 W.	Sec. 17	S½SW¼	80.00
			Sec. 20	W½W½	160.00
				NE¼NW¼	40.00
			Sec. 28	W½NW¼	80.00
				SE¼NW¼	40.00
				SW¼NE¼	40.00
				NE¼SW¼	40.00

APPENDIX
Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision		Acres
104	T. 43 S.	R. 10 W.	Sec. 28	SE¼SW¼		40.00
				W½SE¼		80.00
			Sec. 29	NE¼		160.00
				NE¼NW¼		40.00
			Sec. 33	NW¼NE¼		40.00
				NE¼NW¼		40.00
					Total	880.00
105	T. 43 S.	R. 10 W.	Sec. 27	SW¼SE¼		40.00
					Total	40.00
107	T. 42 S.	R. 14 W.	Sec. 19	Lot 10		0.34
			Sec. 20	Lot 5		8.48
					Total	8.82
108	T. 42 S.	R. 14 W.	Sec. 19	Lot 17		11.40
					Total	11.40
109	T. 42 S.	R. 16 W.	Sec. 15	NW¼NW¼		40.00
					Total	40.00
110	T. 42 S.	R. 16 W.	Sec. 15	Lot 1		8.73
				Lot 2		6.29
				W½W½NE¼		40.00
				SE¼NW¼		40.00
				NE¼SW¼		40.00
				N½SE¼SW¼		20.00
				W½NW¼SE¼		20.00
				NW¼SW¼SE¼		10.00
					Total	185.02
111	T. 42 S.	R. 16 W.	Sec. 15	Tract 37		13.37
					Total	13.37
112	T. 42 S.	R. 16 W.	Sec. 10	NE¼SE¼		40.00
				SE¼NE¼		40.00
					Total	80.00
113	T. 42 S.	R. 16 W.	Sec. 35	NE¼SE¼NW¼		10.00
				E½NW¼SE¼NW¼		5.00
					Total	15.00
114	T. 43 S.	R. 16 W.	Sec. 1	Lot 16		10.00
					Total	10.00
115	T. 43 S.	R. 15 W.	Sec. 8	Tract 37		41.41
					Total	41.41

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
116	T. 42 S.	R. 15 W.	Sec. 15	NW¼NW¼	40.00
				Total	40.00
117	T. 43 S.	R. 10 W.	Sec. 27	SW¼NW¼NE¼	10.00
				W½SW¼NE¼	20.00
				W½W½SE¼SW¼NE¼	2.50
				SE¼NE¼NE¼NW¼	2.50
				SE¼NE¼NW¼	10.00
117	T. 43 S.	R. 10 W.	Sec. 27	E½SE¼NW¼	20.00
				E½E½NW¼SE¼NW¼	2.50
				E½E½SE¼SW¼NE¼	2.50
				Total	70.00
118	T. 39 S.	R. 16 W.	Sec. 31	SE¼SE¼	40.00
				Total	40.00
119	T. 42 S.	R. 16 W.	Sec. 7	N½SW¼NE¼	20.00
				Total	20.00
120	T. 42 S.	R. 16 W.	Sec. 7	Lot 10	39.06
				S½S½SE¼NW¼	10.00
				S½N½S½SE¼NW¼	5.00
				S½NW¼NE¼	20.00
				SE¼NE¼	40.00
					114.06
122	T. 41 S.	R. 12 W.	Sec. 13	Lot 1, NE¼SE¼	80.13
			Sec. 24	Lot 1, Lot 2	81.31
	T. 41 S.	R. 11 W.	Sec. 18	Lot 2	39.60
				Lot 3	39.64
					240.68
123	T. 42 S.	R. 16 W.	Sec. 28	Lot 2	39.03
				Total	39.03
124	T. 42 S.	R. 16 W.	Sec. 28	SE¼NW¼	40.00
				SW¼	160.00
				Total	200.00
125	T. 42 S.	R. 10 W.	Sec. 10	Lots 1 & 2	80.12
				Total	80.12
127	T. 43 S.	R. 10 W.	Sec. 18	Lot 3 & NE¼SW¼	77.12
	T. 43 S.	R. 11 W.	Sec. 13	N½S½	160.00
			Sec. 14	NE¼SE¼	40.00
				Total	277.12

APPENDIX

Land Disposal Legal Descriptions Table (cont.)

Parcel No.	Township	Range	Section	Subdivision	Acres
128	T. 43 S.	R. 10 W.	Sec. 18	SE¼SE¼	40.00
			Sec. 19	Lots 2, 3, 4, E½, SE¼NW¼, E½SW¼	551.79
			Sec. 28	NW¼SW¼	40.00
			Sec. 29	NW¼NW¼, S½NW¼, N½SW¼, N½SE¼	280.00
	T. 43 S.	R. 11 W.	Sec. 24	E½SE¼	80.00
				Total	991.79
129	T. 43 S.	R. 10 W.	Sec. 33	SW¼NE¼	40.00
				S½SE¼NE¼	20.00
			Sec. 34	S½SW¼NW¼	20.00
				Total	80.00
130	T. 41 S.	R. 17 W.	Sec. 24	S½NW¼NE¼	20.00
				SW¼NE¼	40.00
				S½NE¼NW¼	20.00
				S½NW¼NW¼	20.00
				SE¼NW¼	40.00
				Total	140.00
131	T. 41 S.	R. 16 W.	Sec. 19	Lots 2, 3, & 4	
			Sec. 30	Lot 1	
				Total	190.49
132	T. 41 S.	R. 16 W.	Sec. 30	W½SW¼NE¼	20.00
				Total	20.00
133	T. 40 S.	R. 13 W.	Sec. 27	E½NW¼NW¼	20.00
				Total	20.00
134	T. 39 S.	R. 10 W.	Sec. 19	SW¼NE¼	40.00
				Total	40.00
136	T. 40 S.	R. 16 W.	Sec. 17	A strip 4 rods wide off the south side of the SW¼SE¼ (Lot 1)	2.02
			Sec. 19	SE¼NE¼	40.00
				E½NE¼SE¼	20.00
			Sec. 20	SW¼NW¼	40.00
				NW¼SW¼	40.00
					142.02

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION

Parcel Number	Location	Acres	Benefiting Activity
38.20.1	T. 38 S., R. 20 W., Sec. 24: Lot 2	48	Wildlife/Riparian
43.20.1	T. 43 S., R. 20 W., Sec. 36: All	370	T/E (Desert Tortoise Cat. 1)
38.19.1	T. 38 S., R. 19 W., Sec. 4: NE¼SW¼, W½SE¼, SE¼SE¼ Sec. 9: E½NE¼ Sec. 10: W½NW¼, SE¼NW¼	360	Wildlife
38.19.2	T. 38 S., R. 19 W., Sec. 15: N½ Sec. 16: N½	640	Wildlife
39.19.1	T. 39 S., R. 19 W., Sec. 16: S½SW¼	80	Wildlife
39.19.2	T. 39 S., R. 19 W., Sec. 20: SW¼NW¼	40	Recreation (ERMA), Wildlife
39.19.3	T. 39 S., R. 19 W., Sec. 29: The parcel of private land in the SE¼ of section.	17	Recreation (ERMA), Wildlife
40.19.1	T. 40 S., R. 19 W., Sec. 16: All	640	Watershed, Wildlife
43.19.1	T. 43 S., R. 19 W., Sec. 16: All	640	T/E Desert Tortoise (Cat. 1)
43.19.2	T. 43 S., R. 19 W.. Sec. 32: All	371	T/E Desert Tortoise (Cat. 1)
43.19.3	T. 43 S., R. 19 W., Sec. 36: All	372	T/E Desert Tortoise (Cat. 1)
39.18.1	T. 39 S., R 18 W., Sec. 16: W½NW¼ Sec. 17: SE¼NE¼, NE¼SE¼	160	Recreation (ERMA), Wildlife
43.18.1	T. 43 S., R. 18 W., Sec. 5: SE¼SW¼, SW¼SE¼ Sec. 8: NE¼NW¼, NW¼NE¼	160	T/E Desert Tortoise (Cat. 1)
43.18.2	T. 43 S., R. 18 W., Sec. 16: All	640	T/E Desert Tortoise (Cat. 1)
43.18.3	T. 43 S., R. 18 W., Sec. 19: E½SW¼, W½SE¼	160	T/E Desert Tortoise (Cat. 1)
43.18.4	T. 43 S., R. 18 W., Sec. 30: Private parcel in NW¼ of section.	6	T/E Desert Tortoise (Cat. 1)
43.18.5	T. 43 S., R. 18 W., Sec. 32: All	371	T/E Desert Tortoise (Cat. 1)

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION (cont.)

Parcel Number	Location	Acres	Benefiting Activity
43.18.6	T. 43 S., R. 18 W., Sec. 36: All	371	Wilderness
40.17.1	T. 40 S., R. 17 W., Sec. 4: SW¼NW¼, NW¼SW¼ Sec. 5: E½NE¼	160	Wildlife
40.17.2	T. 40 S., R. 17 W., Sec. 16: All	640	Riparian, Water quality & Production
40.17.3	T. 40 S., R. 17 W., Sec. 36: S½NE¼, NW¼, S½	560	Recreation (SRMA)
41.17.1	T. 41 S., R. 17 W., Sec. 2: All	640	Recreation (SRMA) Ground Water Protection
41.17.2	T. 41 S., R. 17 W., Sec. 17: NW¼SE¼	40	Recreation (SRMA), Riparian
41.17.3	T. 41 S., R. 17 W., Sec. 16: All	640	Recreation (SRMA) Ground Water Protection
42.17.1	T. 42 S., R. 17 W., Sec. 12: SW¼NE¼, W½SW¼, SE¼SE¼	160	Riparian, Recreation (ERMA)
42.17.2	T. 42 S., R. 17 W., Sec. 32: All	640	Recreation (ERMA)
42.17.3	T. 42 S., R. 17 W., Sec. 36: All	640	Critical Watershed
43.17.1	T. 43 S., R. 17 W., Sec. 2: All	640	Critical Watershed
43.17.2	T. 43 S., R. 17 W., Sec. 8: W½NE¼, SE¼NW¼, E½SW¼, W½SE¼ Sec. 17: NE¼NW¼	320	Wildlife, State ID for exchange
43.17.3	T. 43 S., R. 17 W., Sec. 16: All	640	State identified for exchange
43.17.4	T. 43 S., R. 17 W., Sec. 32: All	375	Wilderness
43.17.5	T. 43 S., R. 17 W., Sec. 36: All	445	Wilderness
39.16.1	T. 39 S., R. 16 W., Sec. 16: N½NE¼, NE¼NW¼	120	Wildlife
39.16.2	T. 39 S., R. 16 W., Sec. 27: E½NW¼, SE¼NW¼, SW¼	280	Wildlife
40.16.1	T. 40 S., R. 16 W., Sec. 2: W½, SE¼	480	Wildlife
40.16.2	T. 40 S., R. 16 W., Sec. 36: All	640	Ground Water Protection

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION (cont.)

Parcel Number	Location	Acres	Benefiting Activity
41.16.1	T. 41 S., R. 16 W., Sec. 16: NW¼	160	Wildlife Recreation (SRMA)
41.16.2	T. 41 S., R. 16 W., Sec. 28: S½SW¼	80	Wildlife, Recreation (SRMA)
41.16.3	T. 41 S., R. 16 W., Sec. 36: All	640	Desert Tortoise (Cat. 1) Gila Monster
42.16.1	T. 42 S., R. 16 W., Sec. 32: NE¼NE¼	40	Critical Watershed
42.16.2	T. 42 S., R. 16 W., Sec. 32: W½NE¼, SE¼NE¼, W½, SE¼	600	Critical Watershed
43.16.1	T. 43 S., R. 16 W., Sec. 32: All	380	State ID for Exchange
41.15.1	T. 41 S., R. 15 W., Sec. 16: N½	320	Wildlife, Ground Water Protection
41.15.2	T. 41 S., R. 15 W., Sec. 20: N½SW¼SW¼, SE¼SW¼SW¼, SW¼SE¼, Sec. 28: W½NW¼, NW¼SW¼ Sec. 29: N½, SW¼, N½SE¼, SW¼SE¼ Sec. 30: E½E½ Sec. 32: NW¼, NE¼SW¼, NW¼SE¼	1,190	Wildlife
42.15.1	T. 42 S., R. 15 W., Sec. 6: E½, Sec. 7: E½.	640	T/E (Desert Tortoise)
41.14.1	T. 41 S., R. 14 W., Sec. 16: All	640	Recreation (SRMA) Ground Water Protection
41.14.2	T. 41 S., R. 14 W., Sec. 14: W½SW¼SW¼ Sec. 15: SE¼SE¼ Sec. 22: E½NE¼, SE¼SW¼ NE¼SE¼, S½SE¼ Sec. 23: NW¼SW¼ Sec. 27: N½NE¼, SE¼NE¼	420	Recreation (SRMA) T/E Peregrine falcon, tortoise, gila monster
42.14.1	T. 42 S., R. 14 W., Sec. 36: NW¼NW¼	40	Recreation (SRMA)
42.14.2	T. 42 S., R. 14 W., Sec. 36: NW¼NE¼	40	Recreation (SRMA)
42.14.3	T. 42 S., R. 14 W., Sec. 36: NE¼NE¼, S½NE¼ NE¼NW¼, S½NW¼, S½	560	Recreation (SRMA)
43.14.1	T. 43 S., R. 14 W., Sec. 2: All	640	Recreation (SRMA)
43.14.2	T. 43 S., R. 14 W., Sec. 32: All	468	Critical Watershed
43.14.3	T. 43 S., R. 14 W., Sec. 36: All	476	Recreation

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION (cont.)

Parcel Number	Location	Acres	Benefiting Activity
39.13.1	T. 39 S., R. 13 W., Sec. 26: E½SW¼, W½SE¼	160	Wildlife
40.13.1	T. 40 S., R. 13 W., Sec. 3: E½, Sec. 10: E½, Sec. 11: All.	1,760	Wildlife (Mule Deer)
41.13.1	T. 41 S., R. 14 W., Sec. 25: SE¼SE¼ T. 41 S., R. 13 W., Sec. 30: SW¼	240	Riparian
41.13.2	T. 41 S., R. 13 W., Sec. 30: SE¼NE¼	40	Riparian
41.13.3	T. 41 S., R. 13 W., Sec. 28: NW¼NE¼, SE¼NE¼, NE¼NW¼, S½NW¼	200	Riparian
41.13.4	T. 41 S., R. 13 W., Sec. 26: NW¼NW¼ Sec. 27: N½NE¼, NE¼NW¼	160	Riparian
41.13.5	T. 41 S., R. 13 W., Sec. 29: NW¼NW¼	40	Riparian
41.13.6	T. 41 S., R. 13 W., Sec. 30: N½NE¼	80	Riparian
41.13.7	T. 41 S., R. 13 W., Sec. 30: The patented mining claim located in the SW¼NE¼.	15	Riparian
42.13.1	T. 42 S., R. 13 W., Sec. 24: W½SE¼	80	Livestock Grazing
42.13.2	T. 42 S., R. 13 W., Sec. 36: W½NW¼	80	Recreation (ERMA)
42.13.3	T. 42 S., R. 13 W., Sec. 36: W½NE¼	80	Recreation (ERMA)
42.13.4	T. 42 S., R. 13 W., Sec. 36: E½NE¼, E½NW¼, S½	480	Recreation (ERMA)
43.13.1	T. 43 S., R. 13 W., Sec. 2: All	640	Recreation (ERMA)
43.13.2	T. 43 S., R. 13 W., Sec. 16: All	640	Recreation (SRMA)
43.13.3	T. 43 S., R. 13 W., Sec. 32: All	474	Recreation (SRMA)
39.12.1	T. 39 S., R. 12 W., Sec. 20: SW¼SW¼ Sec. 29: NW¼ Sec. 30: N½NE¼, NE¼NW¼	320	Wildlife
39.12.2	T. 39 S., R. 12 W., Sec. 26: N½NE¼, SW¼NE¼, SE¼NW¼	160	Wildlife, Recreation(SRMA)

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION (cont.)

Parcel Number	Location	Acres	Benefiting Activity
40.12.1	T. 40 S., R. 12 W., Sec. 18: W½E½	160	Riparian, Recreation (SRMA)
40.12.2	T. 40 S., R. 12 W., Sec. 19: SE¼SW¼ Sec. 30: N½NW¼, SE¼NW¼	160	Riparian, Recreation (SRMA)
41.12.1	T. 41 S., R. 12 W., Sec. 27: SW¼NW¼, NW¼SW¼ Sec. 28: SE¼NE¼, NE¼SE¼	160	Livestock Grazing
41.12.2	T. 41 S., R. 12 W., Sec. 32: NW¼NW¼	40	Livestock Grazing
41.12.3	T. 41 S., R. 12 W., Sec. 32: NE¼, NE¼NW¼, S½NW¼, S½	600	Livestock Grazing
42.12.1	T. 42 S., R. 12 W., Sec. 19: NW¼SE¼	40	Riparian
42.12.2	T. 42 S., R. 12 W., Sec. 32: All	640	Wildlife, Recreation (ERMA)
43.12.1	T. 43 S., R. 12 W., Sec. 16: All	640	Wildlife, Recreation (ERMA)
43.12.2	T. 43 S., R. 12 W., Sec. 24: SE¼SE¼ Sec. 25: E½E½, SW¼SE¼ T. 43 S., R. 11 W., Sec. 30: Lots 2, 3, 4, and W½	320	Livestock Grazing
42.11.1	T. 42 S., R. 11 W., Sec. 16: All	640	Recreation (SRMA Part)
42.11.2	T. 42 S., R. 11 W., Sec. 13: W½SW¼ Sec. 14: SE¼ Sec. 23: NE¼, E½SE¼ Sec. 24: W½W½	640	Recreation (SRMA)
43.11.1	T. 43 S., R. 11 W., Sec. 2: All	640	Recreation (SRMA)
43.11.2	T. 43 S., R. 11 W., Sec. 31: Lots 5, 6, N½NE¼	160	Livestock Grazing
42.10.1	T. 42 S., R. 10 W., Sec. 16: All	640	Recreation (SRMA)
42.10.2	T. 42 S., R. 10 W., Sec. 32: All	640	Recreation (SRMA)
42.10.3	T. 42 S., R. 10 W., Sec. 36: All	640	Recreation (SRMA)
43.10.1	T. 43 S., R. 10 W., Sec. 16: All	640	Recreation (SRMA)
43.10.2	T. 43 S., R. 10 W., Sec. 36: All	467	Recreation (SRMA)

APPENDIX

LANDS IDENTIFIED FOR ACQUISITION (cont.)

Parcel Number	Location	Acres	Benefiting Activity
42.9½	T. 42 S., R. 9½ W., Sec. 32: All	303	Recreation (SRMA)
43.9½	T. 43 S., R. 9½ W., Sec. 32: All	222	Recreation (SRMA)
	TOTAL ACRES	37,881	

Private and state lands not encumbered by residential developments in the North Zion Scenic Recreation Management Area (Deep Creek and Crystal Creek area) would be considered for acquisition. This would provide access down Crystal Creek to the Deep Creek drainage and to Zion Park. Recreation would be the benefiting activity (approximately 5,000 acres).

APPENDIX

DESCRIPTION OF RECREATION OPPORTUNITY SPECTRUM CLASSES

The enclosed chart describes each of the four ROS classes identified in the DRA in terms of: (1) experience opportunities and; (2) setting opportunities. These descriptors provide a general overview of the opportunities included in each class. These overview statements do not describe each class in detail, but rather provide a point of departure from which the planner or manager can develop more precise prescriptions for each class based on specific situations encountered in field operations used in the Dixie RMP.

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS

Opportunity Class	Experience Opportunity	Setting Opportunity
Primitive	Opportunity for isolation from the sights and sounds of Man, to feel a part of the natural environment, to have a high degree of challenge and risk, and to use outdoor skills.	Area is characterized by essentially unmodified natural environment of fairly large size. Concentration of users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of man-induced restrictions and controls. Only facilities essential for resource protection are used. No facilities for comfort or convenience of the user are provided. Spacing of groups is informal and dispersed to minimize contacts between groups. Motorized use within the area is not permitted.
Semi-Primitive Motorized	Some opportunity for isolation from the sights and sounds of Man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Opportunity to use motorized equipment while in the area.	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of

Opportunity Class	Experience Opportunity	Setting Opportunity
		resource values and safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted.
Roaded Natural	About equal opportunities for affiliation with other user groups and for isolation from sights and sounds of Man. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. Practice of outdoor skills may be important. Opportunities for both motorized and nonmotorized recreation are present.	Area is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Concentration of users is low to moderate with facilities sometimes provided for group activity. On-site controls and restrictions offer a sense of security. Rustic facilities are provided for user convenience as well as for safety and resource protection. Conventional motorized use is provided for in construction standards and design of facilities.
Rural	Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. These factors are generally more important than the natural setting. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are unimportant, except in those activities involving challenge and risk.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are obvious. Sights and sounds of man are readily evident, and the concentration of users is often moderate to high. A considerable number of faclities are designed for use by a large number of people. Facilities are often provided for specific activities. Developed sites, roads and trails are designed for moderate to high use. Moderate densities are provided far away from developed sites. Facilities for intensive motorized use are available.

APPENDIX

LIST OF ACRONYMS

ACEC: Area of Critical Environmental Concern
AMP: Allotment Management Plan
APD: Application for Permit to Drill (fluid minerals)
ATV: all-terrain vehicles
AU: animal unit
AUM: animal unit month
BIA: Bureau of Indian Affairs
BLM: Bureau of Land Management
CCD: Cedar City District Office (BLM)
CFR: Code of Federal Regulations
C&MU: Classification and Multiple Use
DRA: Dixie Resource Area
EIS: Environmental Impact Statement
EPA: Environmental Protection Agency
ERMA: Extensive Recreation Management Area
F: Fahrenheit
FS: Forest Service
FWS: Fish and Wildlife Service
FLPMA: Federal Land Policy and Management Act
I: Interstate
ISA: Instant Study Area
IPP: Intermountain Power Project
MFP: Management Framework Plan
MSA: Management Situation Analysis
NAAQS: National Ambient Air Quality Standards
ONA: Outstanding Natural Area
ORV: off-road vehicles
RMP: Resource Management Plan
RNA: Research Natural Area
R&PP: Recreation and Public Purpose
SCS: Soil Conservation Service
SRMA: Special Recreation Management Area
SSF: soil surface factor
T&E: threatened and endangered
UDWR: Utah Division of Wildlife Resources
USDA: United States Department of Agriculture
USDC: United States Department of Commerce
USDI: United States Department of the Interior
USO: Utah State Office (BLM)
VRM: visual resource management
WSA: Wilderness Study Area
WA: Wilderness Area

APPENDIX
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Fluid Minerals			
Categorization	New categories to State Office within 12 months of plan approval.	New leases contain new categories and stipulations.	5 years following plan approval, randomly check leases.
Mineral Materials			
Sales	Closures and restrictions apply immediately upon plan approval.	No sales in closure areas and restrictions applied appropriately.	5 years following plan approval, randomly check sales.
Locatable Minerals	Withdrawal procedure begins right after plan approval.	Withdrawn areas are not subject to location.	Field personnel monitor areas as part of duties.
Lands			
Land Tenure Adustment	Handle inquiries immediately. Within 24 months, prioritize and plan exchanges.	Exchanges are given priorities over sales. For the first 3 years try to exchange first.	5 years following plan approval, report success of exchanges based on values.
Withdrawal and Classification	Begin withdrawal application immediately after plan approval.	Secure protection of critical resource.	Monitor process after application until complete.
Forestry			
Woodcutting	Designate greenwood areas within 12 months following plan approval.	Monitor use to see that woodcutting follows decisions.	Annually monitor cutting with field inspections.
Desert Vegetation	Immediately after plan approval, all sales in designated areas.	No sales outside of designated areas.	Annual monitoring of sale areas.

APPENDIX (Page 2 of 6)
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Grazing Management Monitoring	Continue current monitoring.	See Appendix.	See Appendix.
Ecological Site Description	Within 24 months of plan approval.	Write combined activity proposal for approval.	Annually with budget.
Range Projects	Use existing budget process.	Existing Allotment Management Plans provide needs.	Annually with budget.
Cultural Resources	Within 24 months of plan approval.	Write an activity plan using all resource programs.	24 months after plan approval.
Visual Resource Management Class	Immediately upon plan approval.	Visual Management objectives are used in evaluation of surface disturbance proposals.	Every 5 years review all contrast rating evaluations.
ACEC's	Implement upon cessation of IMP. If designated as wilderness, drop as ACEC.	If released from IMP, write ACEC Activity Plan.	24 months after plan approval.
Recreation Resources Existing Program	Continue existing program.	Check conditions around campgrounds. Monitor Bloomington Cave if significant.	Annually.
SRMA's	Immediately upon plan approval.	Implement ROS prescriptions for non-IMP SRMA and write RAMP for each.	36 months after plan approval.
ORV	Designations effective upon plan approval. Public information available within 12 months.	Maps for limited, closed, and open areas available to the public.	Concerned activities monitor use and effect on resources.

APPENDIX (Page 3 of 6)
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Recreation Resources Wild & Scenic Rivers	Classification and IMP effective immediately upon plan approval.	No new road construction; maintain free-flowing conditions.	Coordinate with BLM/NPS team.
Soil, Water and Air Resources Existing Decisions	Continue existing management.	Maintain watershed values. Manage municipal and PL 566 watersheds.	Field personnel to review while in the field.
Instream Flow	Immediately after plan approval.	On-site studies to determine flow needs with subsequent rights or agreements.	Annually with budget cycle.
Clean Water	Budget proposal following plan approval.	Conduct inventory and establish monitoring standards.	Annually with budget and during grazing monitoring.
ACEC's	Within 24 months of plan approval.	Develop ACEC Activity Plan using all resource programs.	2 years after plan approval.
Watershed Protection Zone	Within 24 months of plan approval.	Develop a management plan for area.	2 years after plan approval.
Navajo Aquifer	Within 24 months of plan approval	Develop a management plan for area.	2 years after plan approval.
Riparian Existing Decisions	Already in place.	Prepare mitigation on proposals and livestock control.	Field personnel to monitor during visits to field.
Acquisition	As soon as plan is approved.	Request sale inquiries to consider land exchange.	Annually with budget.

APPENDIX (Page 4 of 6)
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Riparian (Cont.)			
ORV Designation	See Recreation comments.		
Fluid Leasing Categories.	See Fluid Mineral comments.	Category 3, NSO on 1/2 to 1 mile buffer around riparian.	
ACECs	Within 24 months of plan approval.	Prepare ACEC Activity Plan using resource specealists	2 years following plan approval.
Nondevelopment Easement	Within 12 months of plan approval.	Put easement acquisition in annual workplan.	1 year following plan approval.
Retain Riparian Areas	Immediately upon approval of plan.	Retain important riparian areas in public ownership.	Annually with budget cycle.
Wildlife Resources Existing Decisions	Continue existing management.	Use existing HMP's. Manage deer, bighorn sheep, etc.	Annually with budget cycle.
Acquisition	As soon as plan is approved.	Request sale inquiries to consider land exchange.	Annually with budget.
Fluid Leasing Categories	See Fluid Minerals comments.	Big game critical habitat in Category 2, NSO from 11-1 to 4-15.	
ORV Designation	See Recreation comments.		
Monitoring	Include in existing work.	Provide additional monitoring for deer and tortoise.	Annually with grazing monitoring.
New Waters	Begin within 12 months of plan approval.	Develop 30 new waters.	Annually with budget cycle.

APPENDIX (Page 5 of 6)
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Bighorn Transplant	Begin planning as soon as plan is approved.	Transplant 20-30 bighorn sheep.	Annually with budget cycle until complete.
Ecological Site Description	Within 24 months of plan approval.	Write combined activity proposal for approval.	Annually with budget cycle until complete.
New HMP's	Within 24 months of plan approval.	Write new and revised Habitat Management Plans.	2 years following plan approval.
Prescribed Fire	Begin planning immediately after plan approval.	Use fire as a habitat improvement tool.	Annually with budget cycle.
T&E Animals	Continue existing management.	Follow current law and policy.	Regularly monitor all proposals for compliance.
Land Acquisition	As soon as plan is approved.	Request sale inquiries to consider land exchange.	Annually with budget.
Conflict Resolution	Immediately after plan approval.	Habitat conflicts to be resolved to protect T&E species.	During regular monitoring process.
Retain T&E Areas	Continue existing management.	Retain all T&E resource in public ownership.	Annually with budget cycle.
ACEC's	Within 24 months of plan approval.	Develop ACEC Activity Plan using all resource programs.	2 years after plan approval.
Monitoring	Include in existing work.	Provide additional monitoring for T&E species.	Annually with grazing monitoring.

APPENDIX (Page 6 of 6)
IMPLEMENTATION AND MONITORING
Dixie Resource Management Plan
(Preferred Alternative-C)

Decision	Target Implementation	Monitoring Standard	Monitoring Interval
Instream Flow	Immediately after plan approval.	On-site studies to determine flow needs with subsequent rights or agreements.	Annually with budget cycle.
Withdrawal	See Withdrawal and Classification comments.	Withdraw from mineral entry Beaver Dam Slope ACEC.	
Fluid Mineral	See Fluid Mineral comments.	Include in NSO category, sensitive tortoise habitat & ACEC.	
ORV Designation	See Recreation comments.	Protect tortoise habitat.	
T&E Plants Existing Decisions	Continue existing management.	Manage resource according to law and policy.	Field personnel to monitor during visits to field.
Fluid Leasing Categories	See Fluid Minerals comments.	Protect T&E habitat with NSO Category.	
ORV Designations	See Recreation comments.	Protect habitat.	
Public Education	Within 12 months after plan approval.	Use all media for public education about T&E plants.	Annually with budget cycle.
ACEC's	Within 24 months after plan approval.	Develop ACEC Activity Plan using all resource programs.	2 years after plan approval.
Fire	Immediately after plan approval.	Continue appropriate fire suppression. Develop resource objectives for modified suppression.	Annually with budget cycle.
Hazardous Materials	Immediately after plan approval.	Evaluate proposals on a case-by-case basis.	Monitor as proposals are made.

APPENDIX

Glossary

ACRE-FOOT. The volume (as of irrigation water) that would cover 1 acre to a depth of 1 foot (43,560) cubic feet).

ACTIVE PREFERENCE. The total number of AUMs of forage that can be licensed without activation of suspended non-use.

AERIE. Nest of eagles or other raptors built on a cliff or other high place.

AIR QUALITY. A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

AIR QUALITY CLASS I AND II AREAS. Regions in attainment areas where maintenance of existing good air quality is of high priority. Class I areas are those that have the most stringent degree of protection from future degradation of air quality, such as National Parks. Class II areas permit moderate deterioration of existing air quality, such as lands administered by the Bureau of Land Management (BLM).

ALKALI SOIL (SODIC). An alkali soil has so high a degree of alkalinity (pH8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that the growth of most crop plants is severely restricted.

ALLOTMENT. An area allocated for the use of the livestock of one or more qualified grazing permittees including prescribed numbers and kinds of livestock under one plan of management.

ALLOTMENT MANAGEMENT PLAN (AMP). A written program of livestock grazing management including supportive measures, if required. An AMP is designed to attain specific management goals in a grazing allotment and is prepared cooperatively with the permittee(s) or lessee(s).

ALTERNATIVE. One of at least two proposed means of accomplishing planning objectives.

ANALYSIS. The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.

ANIMAL UNIT MONTH (AUM). The amount of forage required to sustain the equivalent of 1 cow for 1 month; 1 wild horse for 1 month; or 6.2 sheep for 1 month; 8.9 deer for 1 month (winter season), 5.8 deer for 1 month (summer season); 9.6 antelope for 1 month; 5.5 bighorn sheep for 1 month; 2.2 burros for 1 month; 1.2 elk for 1 month (winter season) or 2.1 elk for 1 month (yearlong) (usually 800 lbs. of useable air-dried forage).

AQUATIC. Living or growing in or on the water.

ARCHAEOLOGY. The scientific study of the material remains of extinct peoples and past cultures.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life/provide safety from natural hazards.

BASE WATERS. Certain water facilities where control and/or ownership determine grazing privileges.

BASIC VISUAL ELEMENTS. The elements which determine how the character of a landscape is perceived. FORM: The shape of object such as landforms or patterns in the landscape. LINE: Perceivable linear changes in contrast resulting from abrupt differences in form, color, or texture. COLOR: The reflected light of different wave lengths that enables the eye to differentiate otherwise identical objects. Texture: The visual results of variation in the surface of an object.

BLOCKFAULTING. A type of normal faulting in which the crust is divided into structural or fault blocks of different elevations and orientations. It is the process by which block mountains are formed.

CARBON DIOXIDE. A colorless, odorless, toxic gas produced by the complete combustion of carbon-containing substances.

CARBON MONOXIDE. A colorless, odorless, toxic gas produced by the incomplete combustion of carbon-containing substances.

CHAINING. The process of modifying vegetation by pulling an anchor chain between two crawler tractors, thus reducing tall-growing, brittle vegetation and enhancing grasses, forbs, and sprouting shrubs.

CLASTIC. Of, belonging to, or being a rock (as a conglomerate or a sandstone) made of fragments of preexisting rocks.

COMMERCIAL FOREST LANDS. Lands which produce at least 20 cubic feet of forest products per acre per year.

COMMERCIAL SPECIES. Includes all species of softwoods except pinyon-juniper and yew. Hardwoods include aspen and cottonwood.

COMMERCIAL USER DAY. The amount of commercial use within a 24-hour period or any portion thereof. For this analysis, the assumption has been made that 1 commercial user day averages 1 visitor day (12 visitor hours).

COMPETITIVE FORAGE. Plant species which are grazed (preferred) by more than one species of herbivore.

CONFORMATION. Arrangement of parts, manner of formation or structure.

CRITICAL WILDLIFE HABITAT. That portion of wildlife habitat that is essential to the survival and perpetuation of a certain species in an area.

CROWN CLOSURE OR DENSITY. When viewed from above, the percent of the ground that is covered by the crowns of trees.

CUBIC FEET PER SECOND (cfs) (sec. ft.). As a rate of streamflow, a cubic foot of water passing a referenced section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

CULTURAL RESOURCES. Those resources of historical, archaeological, and paleontological significance.

DEFACTO RIGHT-OF-WAY CORRIDOR. A parcel of land, without fixed limits or boundaries, that is being used as the location for one or more major rights-of-way, i.e., existing right-of-way corridor.

DESIGNATED RIGHT-OF-WAY CORRIDOR. A parcel of land, linear or aerial, that has been identified through the land use planning process or by other management decision as being a preferred location for existing and future rights-of-way, and suitable to accommodate more than one type of right-of-way or one or more rights-of-way which are similar, or compatible.

DEVELOPED RECREATION SITE. A site developed primarily to accommodate specific intensive use activities or groupings of activities such as camping, picnicking, boating, swimming, winter sports, etc. These sites include permanent facilities such as roads, trails, toilets, and other facilities needed to accommodate the specific use intended at the site. These sites are designed to accommodate recreation use over the long-term and require continuing management commitment and regular maintenance.

EMISSION. Pollutants released to the atmosphere from any combustion process. Sometimes used synonymously with effluent, but is more applicable to atmospheric discharges.

ENDANGERED SPECIES. Any animal or plant species in danger of extinction throughout all of a significant portion of its range.

ENDEMIC. A species restricted to a given geographical location and which are native to that locale.

ENVIRONMENT. All that surrounds an organism and interacts with it.

ENVIRONMENTAL ANALYSIS. A systematic process for consideration of environmental factors in land management actions.

EPHEMERAL STREAM. A stream or reach of a stream that flows briefly only in direct response to rain or snow melt in the immediate locality and whose channel is at all times above the water table.

ERODIBILITY. Susceptibility of a soil to erosion by water or wind. Relative terms are none, slight, moderate, and high.

EROSION CONDITION CLASSES. There are five classes: stable, slight, moderate, critical, and severe. Soil surface factors (SSFs) are used to determine the erosion condition class.

EXCHANGE-OF-USE. An agreement made with a permittee having ownership or control of non-federal land interspersed and grazed in conjunction with surrounding Federal range. This agreement specifies the carrying capacity and gives BLM control of the nonfederal land for grazing purposes.

EXCLOSURE. An area fenced to exclude animals.

EXTENSIVE RECREATION MANAGEMENT AREA (ERMA). An area where recreation management is only one of several management objectives and where limited commitment of resources is required to provide extensive and unstructured types of recreation activities. They may contain recreation sites. These areas consist of the remainder of land areas not included in SRMAs within a resource management area or district.

FIRE MANAGEMENT PLAN. An activity plan developed to support and accomplish resource management objectives and applicable land-use decisions authorized in BLM Resource Management Plans. Establishes basic direction for the fire management program, identifies priorities for execution, and determines levels of fire resources (personnel, engines, aircraft, and facilities), including an economic analysis.

FORAGE. Vegetation of all forms available and of a type used for animal consumption.

FORB. A broad-leafed herb.

FOREST PRODUCTS. Woodland and timber products, such as posts, poles, firewood, and sawlogs.

FULL FIRE SUPPRESSION. The full suppression of wildfires on the resource area with whatever combination of manpower, equipment, and judgment is required.

GRAZING PERMIT. An authorization which allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: preference (10 year) and temporary nonrenewable (1 year).

GRAZING PERMIT VALUE. BLM allocated AUMs may be transferred from one operator to another. The dollar value given by one operator (buyer) to induce a present permit holder (seller) to transfer his permit is known as the "permit value" of an AUM. This "permit value" may have a significant bearing on the rancher's capital value.

GRAZING PREFERENCE. The total number (active and suspended non-use) of animal unit months of livestock grazing on public land apportioned and attached to base property owned or controlled by a permittee.

GRAZING SYSTEM. A prescribed method of grazing a range allotment having two or more pastures or management units to provide periodic rest for each unit.

HABITAT. A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

HABITAT MANAGEMENT PLAN (HMP). A plan for a geographic area of public lands which identifies wildlife habitat management actions to be implemented to achieve specific objectives.

HERBIVORE. Animals that browse or graze upon plants.

HIGH PRIORITY HABITAT. Intensive use areas for one or more species of historic or existing high-interest wildlife, including Class 3 water sources (as identified by the Utah Division of Wildlife Resources). Also includes areas where the potential occurrence of endangered species exists (based on unconfirmed reports and professional judgments of wildlife biologists familiar with the area) and areas were documented and legally defensible evidence of the past occurrence of a threatened species is available. Also includes sensitive or intensive use areas where disturbance could result in subsidence, which could interrupt underground aquifers and result in a local loss of ground water and decreased flows in seeps and springs.

HYDROCARBONS. A general term for organic compounds that contain only carbon and hydrogen in the molecule.

HYPOTHERMAL. Hydrothermal mineral deposit formed at great depth in the temperature range of 300 to 500 degrees Centigrade.

IMPOUNDMENT. A structure usually made of earth to hold runoff water.

IMPROVED WATER SOURCE. Water sources (springs, wells) that have facilities, such as water boxes, pipelines, troughs, pumps, etc., installed to increase water quality, quantity, and availability.

INTERIM MANAGEMENT POLICY (IMP). An interim measure governing lands under wilderness review. This policy protects Wilderness Study Areas from impairment of their suitability as wilderness.

INTERMITTENT STREAM. A stream which flows part of the time, usually after a rainstorm, during wet weather, or only part of the year.

KIND OR CLASS OF LIVESTOCK. Kind: The species of domestic livestock-cattle and sheep. Class: The age class (i.e., yearling or cows) of a species of livestock.

KNOWN GEOLOGIC STRUCTURES (KGS). Technically, the known geologic structure of a producing oil or gas field is construed by the Geological Survey to be the trap, whether structural or stratigraphic, in which an accumulation of oil or gas has taken place, and the limits of said trap, irrespective of the degree to which it may be occupied by oil or gas. Known geologic structures are frequently much more extensive than the pools of oil or gas they may contain, and the extent and place of any oil or gas accumulation therein, though influenced by structure, is finally determined by such factors as stratigraphy, hydrocarbon supply, sand conditions, and hydrostatic pressure. The Geological Survey seeks to evaluate the net effect of these several factors in terms of reasonably presumptive productive acreage and, as far as practicable, to conform the results, modified to include a fair safety margin, to the subsurface contours of the dominant structural feature involved.

LAND TREATMENT. Changing the characteristics of an established vegetation type for the purpose of improving rangeland forage or wildlife habitat resources. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods alter the vegetation by chaining, spraying with herbicides, burning, and plowing, followed by seeding with well adapted desirable plant species.

LAND USE PLAN. A plan that reflects an analysis of activity systems and a carefully studied estimate of future land requirements for expansion, growth control, and revitalization or renewal. The plan shows how development in the area should proceed in the future to insure the best possible physical environment for living, the most economic and environmentally sensitive use of land, and the proper balance in use from a cost revenue point of view. The land use plan embodies a proposal as to how land should be used in the future, recognizing local objectives and generally accepted principals of health, safety, convenience, economy, and general living amenities.

LEASABLE MINERALS. Refer to Mineral Classifications.

LEASING CATEGORIES. The four categories used to determine leasing activities for oil and gas and tar sand were based on potential for development, other resource uses, and protection of sensitive resource values. Category 1 opens all public lands to leasing with standard stipulations. Category 2 allows leasing with standard and special stipulations to protect sensitive resource values. Category 3 allows leasing with no right of surface occupancy; recovery methods must not disturb the surface. Category 4 closes lands to leasing.

LIMITED FIRE SUPPRESSION. This is a wildfire suppression action, which recognizes that fire suppression in specific areas is: (1) extremely difficult to suppress (hazardous to fire fighting personnel or suppression operation including aircraft); (2) the resource value threatened does not warrant the expense associated with a full suppression action; or (3) the area has been identified as an area for prescribed burning.

LIMITED-VALUE HABITAT. Occasional use areas for one or more species of existing high interest wildlife, including Class 5 or 6 water sources (as identified by the Utah Division of Wildlife Resources). This habitat shows an absence of endangered or threatened wildlife species. Areas include those with a moderate potential (50 percent probability) for reclamation to previous condition and those moderately sensitive habitats and occasional use areas where acceptable mitigation options are definable.

LIVESTOCK PERMITTEE. A person or organization legally permitted to graze livestock on public lands.

LOCATABLE MINERALS. Refer to Mineral Classifications.

LONG-TERM VISITOR AREA (LTVA). An area where long-term (thirty days or longer, normally for a season, i.e., winter/summer) camping is allowed, and fees are not collected on a per night basis, but instead are collected under a special recreation permit for the period of camping allowed.

M I C SELECTIVE MANAGEMENT POLICY. Direction under which all grazing allotments are categorized for management purposes into three groups. The overall objectives are: M-maintain the current resource conditions; I-improve the current resource conditions; and C-custodially manage the existing resource values.

MANAGEMENT CONCERN. Concerns which do not meet the criteria for a planning issue but cannot be resolved administratively. Management concerns result from professional judgment and familiarity with conditions in a resource area and may be further defined by inventory and analysis. Examples might include a fragile watershed or a need to establish special designation.

MANAGEMENT FRAMEWORK PLAN (MFP). A land use plan for public lands administered by BLM which provides a set of goals, objectives, and constraints for a specific planning unit or area; a guide to the development of detailed plans for the management of each resource. This form of plan is now being replaced with Resource Management Plans.

MINERAL CLASSIFICATIONS. Minerals are classified into several broad categories. Leasable mineral resources include oil, gas, tar sand, oil shale, geothermal, and carbon dioxide. Locatable minerals include uranium, gold, silver, copper, and vanadium. Saleable resources include sand, gravel, and building stone.

MONTANE: Pertaining to mountains.

MULTIPLE USE: Management of public lands and their various resource values so that they are used in the combination that will best meet the present and future needs of the American people. Relative values of the resources are considered, not necessarily the combination of uses that will give the greatest potential economic return or the greatest unit output.

NATIVE RANGE. Those rangelands which support natural vegetation as opposed to reseeded range which usually contains introduced vegetation.

NATURALNESS. An area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." (Section 2c, WILDERNESS ACT).

NITROGEN OXIDES. Nitrogen compounds produced by combustion, particularly when there is an excess of air or when combustion temperatures are very high.

NONCOMMERCIAL FOREST LANDS. Lands which produce less than 20 cubic feet of forest products per year.

NON-COMPETITIVE FORAGE. Forage which deer, elk, wild horses, or antelope use and which are not used by livestock.

OCULAR RECONNAISSANCE SURVEY. A forage survey method which inventories vegetation by estimating total forage density, percent composition by species, and total useable forage in a given range type to determine the carrying capacity for livestock and wildlife.

OFF-ROAD VEHICLES (ORV). Any motorized vehicle designed for or capable of cross-country travel over lands, water, sand, snow, ice, marsh, swampland, or other terrain.

OPTION VALUE. A distinct category of non-user benefits which is the amount which people would be willing to pay for retention of a recreation area or facility which is not captured by user charges or taxation or even estimated as users current consumer's surplus.

OUTSTANDING. Standing out among others of its kind; distinguished; excellent.

PARTICULATE MATTER. Any material, except water in a chemically uncombined form, that is or has been airborne and exists as a liquid or a solid at standard temperature and pressure conditions. Minute particles of coal dust, fly ash, smoke, or other solid material suspended in the atmosphere.

PERCENT FEDERAL RANGE. AUMs on public lands compared to AUMs on private and State lands.

PERCENT UTILIZATION. Grazing use of current growth, usually expressed as a percent of weight removed and most often related to key plant species.

PERMANENT IMPROVEMENT. A man-made structural or nonstructural improvement which will remain at a particular location for more than one field season, as differentiated from the temporary structures. Includes such items as toilet buildings, trails, cabins, signs, fences, vegetation treatment areas, shelters, and fire grills.

PERMEABILITY (SOIL). The ease with which gasses, liquids, or plant roots penetrate or pass through a layer of soil.

PHASE, SOIL. A subdivision of soil series or other unit in the soil classification system based on differences in the soil that affect its use and management. A soil series, for example, may be divided into phases on the basis of differences in slope, stoniness, thickness, or some other characteristic that affects its use and management. These differences are too small to justify separate series.

PLANNING AREA. One or more planning units for which Management Framework Plans are prepared.

PLANNING ISSUE. (Bureau Manual 1616.1). Multiple use conflicts which usually are long-term and cannot be resolved by administrative action only. A planning issue must have two or more of the following characteristics: (1) concern expressed by public land users, State or local government, or another Federal agency; (2) existing or potential serious deterioration of public lands or resources; (3) possible significant impacts on and sometimes off public lands; (4) proposed uses which may not be in the best public interest or which may be in serious conflict with other uses. In addition, a planning issue must be mapable, decisions which could resolve it must be discretionary, it must not require resolution before planning is completed, and there must be alternative means of resolution. Resource management programs are not, by themselves, planning issues.

PLANNING UNIT. A geographic unit within a BLM district that includes related lands, resources, and use pressure problems which are considered together for resource inventory and planning.

PLANT COMPOSITION. The mixture of plants found in a vegetation type or study area usually expressed in percents as related to all the other plants.

PLANT VIGOR. The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth and maintenance.

POTENTIAL NATURAL VEGETATION (PNV). Vegetation that would exist if plant succession were allowed to reach climax without any human interference. PNV is a particularly important object of research because it reveals the biological potential of all sites.

PRESCRIBED FIRE. Controlled application of fire to natural fuels under conditions of weather, fuel moisture, and soil moisture that will allow confinement of the fire to a predetermined area and, at the same time, will produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives to wildlife, livestock, and watershed values. The overall objectives are to employ fire scientifically to realize maximum net benefits at minimum environmental damage and acceptable cost.

PRIOR STABLE LEVELS. A calculated number derived from deer population dynamics data from the average of 10 or more years when deer populations were stable and at or near the carrying capacity of the range of a given deer herd unit.

PROPER USE. A degree and time of grazing use which, if continued, will either maintain or improve the vegetation condition consistent with conservation or other natural resources.

PUBLIC LANDS. Any lands or interest in lands outside of Alaska owned by the United States and administered by the Secretary of the Interior through the BLM, except lands located on the Outer Continental Shelf and lands held for the benefit of Indians.

PUBLIC PARTICIPATION. The process of attaining citizen input into each stage of development of planning documents. It is required as a major input into the BLM's planning system.

RANGE CONDITION. The present stage of vegetation of a range site in relation to the climax (natural potential) plant community for that site. Condition is expressed as excellent, good, fair, or poor.

RANGE DEVELOPMENTS. Special treatments, developments, and/or structures used to improve range forage resources or to facilitate their use by grazing animals.

RANGE FORAGE CONDITION. A condition rating based on the amount of forage (lbs/acre) currently produced on an allotment useable by livestock in relation to its potential forage production (lbs/acre).

RANGE SITE. A distinctive kind of rangeland that differs from other kinds of rangeland in its potential to produce native plants.

RANGELAND. Land dominated by vegetation that is useful for grazing and browsing by animals. "Range" and "rangeland" are used interchangeably.

RANGELAND IMPROVEMENTS. Any activity or program on or relating to rangelands that is designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Rangeland improvements include land treatments (e.g., chaining, seeding, burning, etc.), stockwater developments, fences, and trails.

RANGELAND MONITORING PROGRAM. A program designed to measure changes in plant composition, ground cover, animal populations, and climatic conditions on the public rangeland. Vegetation studies are used to monitor changes in rangeland condition and determine the reason for any changes that are occurring. The vegetation studies consist of actual use, utilization, trend, and climatic conditions.

RANGELAND SURVEY/STUDIES. An inventory of the rangeland resources including production of plant materials, plant composition, rangeland use, physical features, and natural conditions, such as water, barriers, etc., for the purpose of estimating ecological conditions, trends in condition, estimated proper stocking rates, etc. These studies are useful in management planning.

RAPTORS. Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.

RECREATION OPPORTUNITY SPECTRUM (ROS) CLASSES: (see attached description at end of Glossary).

REGION. May be any geographic area larger than a planning area (Social-Economic Profile Area, sub-State, State, Multi-State, or National), which is appropriate for comparative area analysis and for which information is available. Regions may be different for different resources or subject matter analysis.

RELATIVE HUMIDITY. The relative measure of water vapor content in the atmosphere.

RELICT VEGETATION. A remnant or fragment of a flora that remains from a former period when it was more widely distributed.

RESOURCE AREA. A manageable geographic subdivision of a BLM District consisting of one or more planning areas.

RESOURCES. All of the products and physical values produced or contained within public lands. They include the values which are known as natural resources (i.e., timber, coal, oil, etc.).

RIPARIAN HABITAT. A native environment growing near streams, reservoirs, ponds, etc. that provides food, cover, water, and living space (permanent or intermittent). It is usually unique or limited in arid regions and is, therefore, of great importance to a wide variety of wildlife.

RIPARIAN VEGETATION. Plants adapted to moist growing conditions along streams, waterways, ponds, etc.

SALINE-ALKALI SOIL. A soil containing sufficient exchangeable sodium to interfere with the growth of most crop plants and containing appreciable quantities of soluble salts. The exchangeable-sodium-percentage is greater than 15, and the electrical conductivity of the saturation extract is greater than 4 mmhos per centimeter (at 25 degrees C). The pH reading of the saturated soil is usually less than 8.5.

SALINE SOIL. A nonalkali soil containing soluble salts in such quantities that they interfere with the growth of most crop plants. The electrical conductivity of the saturation extract is greater than 4 mmhos per centimeter (at 25 degrees C), and the exchangeable-sodium-percentage is less than 15. The pH reading of the saturated soil is usually less than 8.5. Slightly Saline: Less than 4 mmhos above 3 inches and 4-16 mmhos below 8 inches. Moderately Saline: 4-16 mmhos above 20 inches and more than 16 mmhos below 20 inches. Strongly Saline: More than 16 mmhos in surface and throughout the soil profile.

SEDIMENT YIELD. The amount of mineral or organic soil material that is in suspension, is being transported, or has been moved from its site of origin by running water.

SENSITIVE SPECIES. Species not yet officially listed but that are undergoing status review for listing on the Fish and Wildlife Service official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

SOIL ASSOCIATION. A group of defined and named soil units occurring together in individual and characteristic patterns over a geographic region.

SOIL CLASSIFICATION. The systematic arrangement of soils into classes of one or more categories or levels of classification for a specific objective. Broad groupings are made on the basis of general characteristics and subdivisions are made on the basis of more detailed differences in specific properties.

SOIL SURFACE FACTOR (SSF). A numerical expression of surface erosion activity caused by wind and water as reflected by soil movement, surface litter, erosion pavement, pedastalling, rills, flow patterns, and gullies. Values may vary from zero for no erosion to 100 for severe erosion conditions.

SOIL-VEGETATION INVENTORY. A uniform, systematic method for inventory of soil and vegetation resources and collecting data for use in planning and environmental assessments.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). An area where a commitment has been made, within the parameters of multiple use, to provide specific recreation activity and experience opportunities on a sustained yield basis. This includes a long-term commitment to manage the physical, social, and managerial settings to sustain these activity and experience opportunities. Delineation is based on similar or interdependent recreation values, homogeneous or inter-related recreation uses, land tenure and use patterns, transportation systems, administrative efficiency, intensity of use, high resource values, public concerns, or interagency considerations. These areas usually require a high level of recreation investment and/or management. They include recreation sites, but recreation sites alone do not constitute a SRMA.

STATE LANDS. Land controlled or administered by the State of Utah.

STOCKING RATE. The degree to which an allotment is stocked with livestock and big game, usually expressed in animal unit months.

STOCK WATERING POND. A water impoundment made by constructing a dam or by excavating a dugout or both to provide water for livestock and/or wildlife.

SUBSTANTIAL-VALUE HABITAT. Use areas for one or more species of existing high interest wildlife, including Class 4 water sources (as identified by the Utah Division of Wildlife Resources). These areas show an absence of endangered species; however, potential for occurrence of a threatened species (based on professional judgment of wildlife biologists familiar with the area) may exist. This also includes areas where moderately sensitive habitats on which acceptable permanent mitigation options can be achieved.

SULFUR OXIDES. A pungent toxic gas yielded by the combustion of fossil fuels.

TAXA. Any taxonomic unit, as an order, genus, variety, etc.

THREATENED SPECIES. Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range.

TOTAL DISSOLVED SOLIDS (TDS). The total quantity (milligrams per liter) of dissolved materials in water.

TRADITIONAL USE. Use (e.g., wood cutting, ORV) of an area that has occurred before 1976.

TREND IN RANGE CONDITION. An interpretation of the direction of change in range condition. These determinations may relate to ecological site or forage conditions. Also vegetation trend that is improving (upward) not changing (static) and declining (downward).

UNDEVELOPED RECREATION SITE. A site which is used for intensive activities such as camping or picnicking but was not specifically developed for that purpose. The facilities are usually temporary in nature, designed to minimize resource damage and provide for short-term use. Although little or no investment may have been made by BLM at the site, BLM has a management commitment to periodically monitor and provide basic maintenance.

UNIT RESOURCE ANALYSIS (URA). A compilation of physical resource data and an analysis of the current use, production, condition, and trend of the resource and the potentials and opportunities within a planning unit or area, including a profile of ecological values.

VEGETATION. Plants in general or the sum total of the plant life above and below ground in an area.

VEGETATION UTILIZATION. The portion of the current year's forage production that is consumed or destroyed by grazing animals. May refer either to a single species or to the vegetation as a whole, usually expressed in percentage.

VISIBILITY. The greatest distance in a given direction where it is possible to see and identify with the unaided eye a prominent dark object against the sky at the horizon.

VISITOR DAY. Twelve visitor hours which may be aggregated by one of more persons in single or multiple visits.

VISITOR USE. Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

VISUAL RESOURCE MANAGEMENT (VRM). Classes. Management classes are determined on the basis of overall scenic quality, distance from travel routes, and sensitivity to change. Class I: Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted. Class II: Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character. Class III: Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character. Class IV: Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

WETLANDS. Lands including swamps, marshes, bogs, and similar areas, such as wet meadows, river overflows, mud flats, and natural ponds.

WILDERNESS. An area where the earth and its community of life are untrammeled by Man, where Man himself is a visitor who does not remain. An area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitations.

WILDERNESS AREA. An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to "the public purposes of recreation, scenic, scientific, educational, conservation, and historical use."

WILDERNESS STUDY AREA. Areas under study for possible inclusion as a Wilderness Area in the National Wilderness Preservation System (NWPS).

WILDFIRE. A free-burning fire requiring a suppression response.

WOODLAND. Forest lands stocked with other than timber species (i.e., pinyon, juniper, mountain mahogany, etc.). Uses of the woodland products are generally limited to firewood, posts, and harvest of fruit (pinyon pine nuts).

REFERENCES

Social Economic Profile, District Files, Jay Carlson. 1986.

Management Situation Analysis, DRMP, District Files, USDI. BLM. 1988.

Dixie Management Plan, State of Utah. 1986.

Range Program Summary, Dixie Resource Area, 1988. District Files, USDI, BLM.

Wagner, Bill. Personal Communication. 1986

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989—673-227/00,503 REGION NO. 8

Alternative A

DIXIE RESOURCE AREA

CEDAR CITY DISTRICT

DRAFT DIXIE RESOURCE MANAGEMENT PLAN

ALTERNATIVE A

■ **WILDERNESS** : RECREATION, WILDLIFE, WATERSHED & GRAZING MULTIPLE USE MANAGEMENT

🟪 **ORV CLOSURE** : T&E SPECIES, WATERSHED, GRAZING & VRM MULTIPLE USE MANAGEMENT

🟩 **OIL & GAS CATAGORY 4 (CLOSED TO LEASING)** : PRIMITIVE RECREATION, VRM, WATERSHED & WILDLIFE MULTIPLE USE MANAGEMENT

🟩 **OIL & GAS CATAGORY 3** : WATERSHED, PRIMITIVE RECREATION, T&E SPECIES & WILDLIFE MULTIPLE USE MANAGEMENT

🟩 **OIL & GAS CATAGORY 2 (SPEC. STIPS)** : T&E ANIMALS, WILDLIFE, GRAZING & WATERSHED MULTIPLE USE MANAGEMENT

🟨 **VRM** : RECREATION, WILDLIFE, WATERSHED & GRAZING MULTIPLE USE MANAGEMENT

■ **LAND DISPOSAL** : MINERALS (SALABLE), GRAZING, RECREATION & WILDLIFE MULTIPLE USE MANAGEMENT

▨ **GRAZING** : MINERALS (ALL), WATERSHED, WILDLIFE & RECREATION MULTIPLE USE MANAGEMENT

□ **NON BLM SURFACE**

NEVADA
FOREST
PINE
VALLEY
MTNS
VEYO
MOTOQUA
GUNLOCK
18
T 40 S
15'
SNOW CANYON STATE PARK
T 41 S
SHIVWITS
IVINS
PAIUTE INDIAN RESERVATION
SANTA CLARA
T 42 S
MIDDLETON
WASHINGTON
ST.GEORGE
15
T 43 S
15
37°00'
114°
R 20 W
R 19 W
R 18 W
45'
R 17 W
R 16 W
R 15 W
30'
R 14 W
ARIZONA

JANUARY 1989

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989-676-577

DIXIE RESOURCE AREA

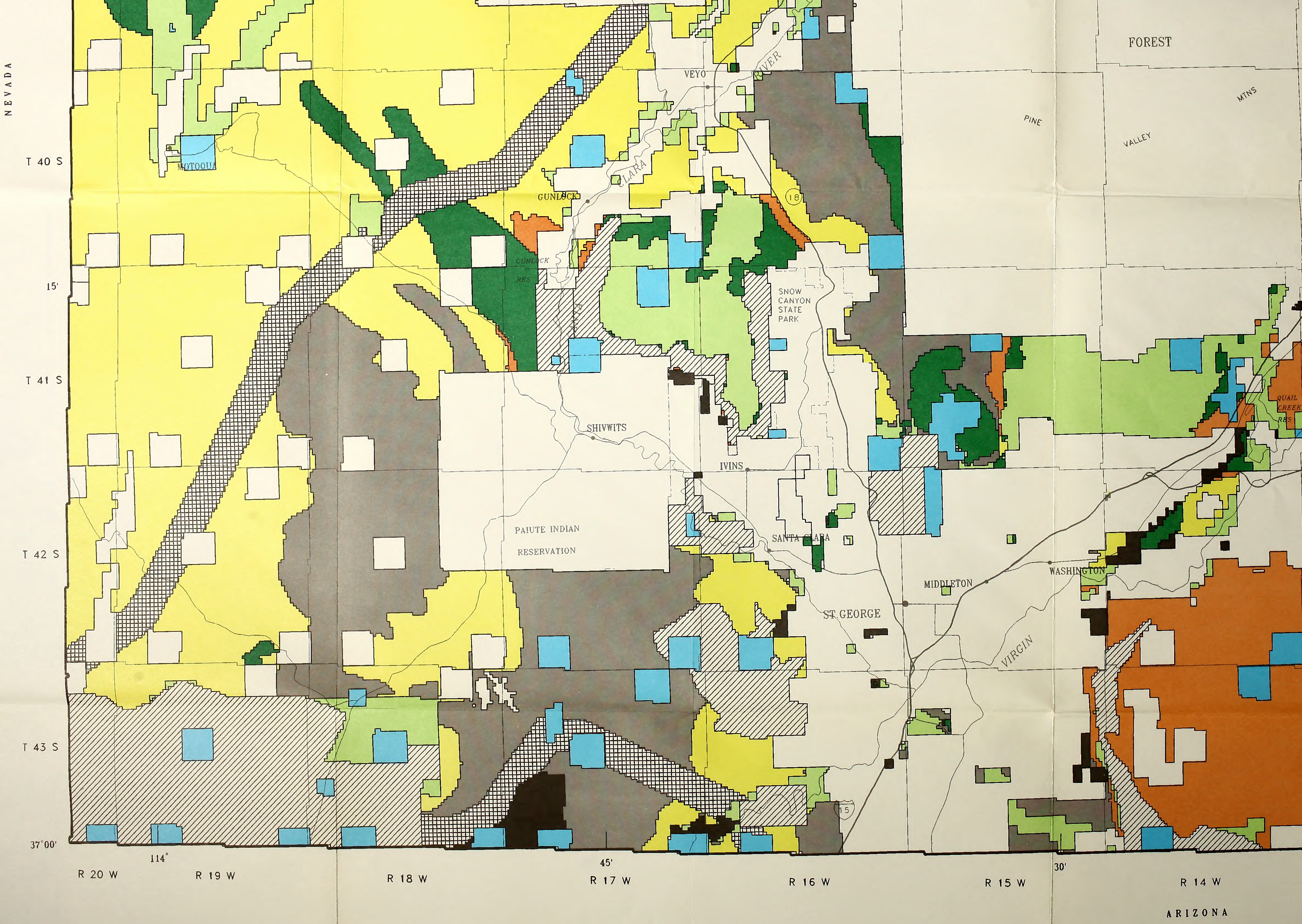
CEDAR CITY DISTRICT

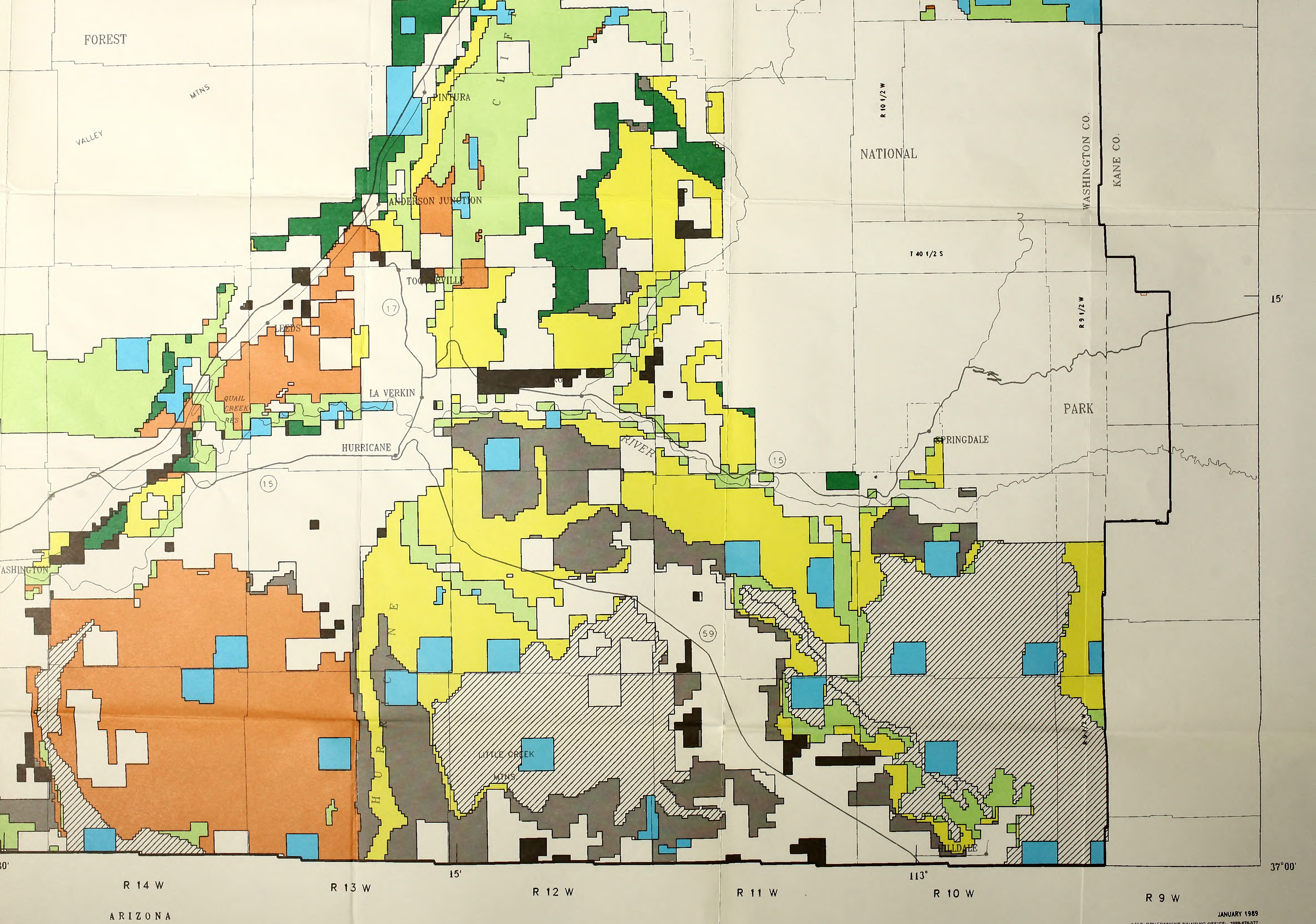
Alternative C

DRAFT DIXIE RESOURCE MANAGEMENT PLAN

ALTERNATIVE C

30'
113°15'00"
37°41'15"
DESIGNATED WILDERNESS: PRIMITIVE RECREATION, T & E ANIMALS, WILDLIFE AND VRM MULTIPLE USE MANAGEMENT
ACECs: RECREATION, WATERSHED, GRAZING & WILDLIFE MULTIPLE USE MANAGEMENT
ACQUISITIONS: T & E SPECIES, WATERSHED, RECREATION & WILDLIFE MULTIPLE USE MANAGEMENT
OIL & GAS CATEGORY 3 (NSO): WATERSHED, PRIMITIVE RECREATION, T & E PLANTS, AND WILDLIFE MULTIPLE USE MANAGEMENT
RIGHT-OF-WAY CORRIDORS: R-O-Ws, GRAZING, RECREATION & MINERALS (ALL) MULTIPLE USE MANAGEMENT
OIL & GAS CATEGORY 2 (SPEC. STIPS): GRAZING, WATERSHED, WILDLIFE & T & E ANIMALS MULTIPLE USE MANAGEMENT
LAND DISPOSALS: MINERALS (SALEABLE, LEASEABLE), GRAZING, RECREATION & R-O-Ws MULTIPLE USE MANAGEMENT
SRMAs: WATERSHED, WILDLIFE, REALTY & GRAZING MULTIPLE USE MANAGEMENT
VRM CLASS II: RECREATION, WILDLIFE, WATERSHED & GRAZING MULTIPLE USE MANGEMENT
GRAZING: MINERALS (ALL), WATERSHED, WILDLIFE & GRAZING MULTIPLE USE MANAGEMENT
NON BLM SURFACE
N
0
5
10 MILES
113°
112°48'15"
37°33'45"
DIXIE N.F.
30'
LITTLE PINTO
PINTO
T 37 1/2 S
NEW HARMONY
15
ZION
PINE VALLEY
FOREST
MTNS
PINTURA
C L I F F S
10 1/2 W


NEVADA
T 40 S
15'
T 41 S
T 42 S
T 43 S
37°00'
114°
R 20 W
R 19 W
R 18 W
45'
R 17 W
R 16 W
R 15 W
30'
R 14 W
ARIZONA
FOREST
PINE
VALLEY
MTNS
VEYO
RIVER
CLARA
MOTOQUA
GUNLOCK
GUNLOCK
RES
18
SNOW
CANYON
STATE
PARK
SHIVWITS
IVINS
PAIUTE INDIAN
RESERVATION
SANTA CLARA
ST GEORGE
MIDDLETON
WASHINGTON
VIRGIN
QUAIL
CREEK
RES
15

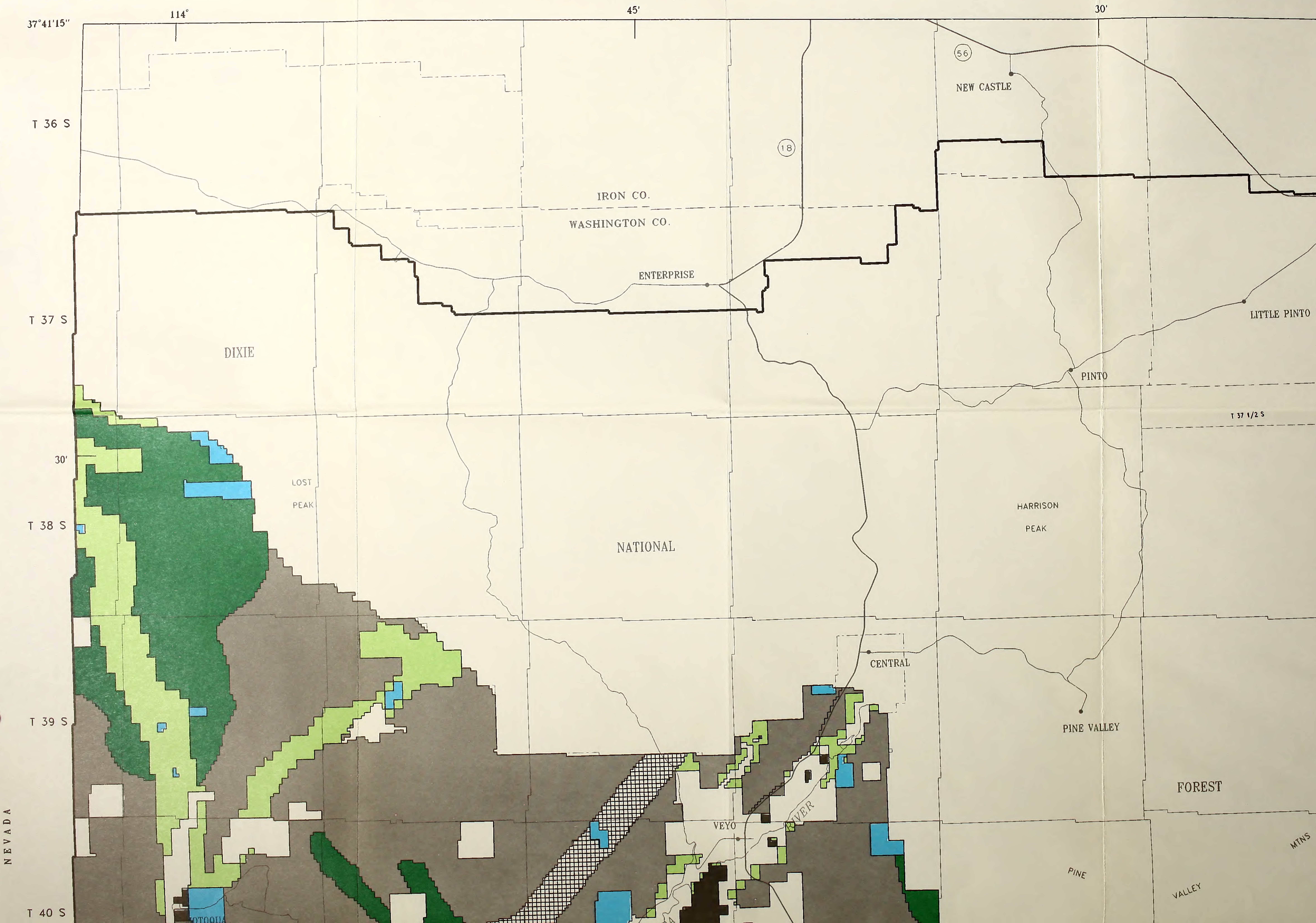


JANUARY 1989
☆ U.S. GOVERNMENT PRINTING OFFICE: 1989-676-577

Alternative B

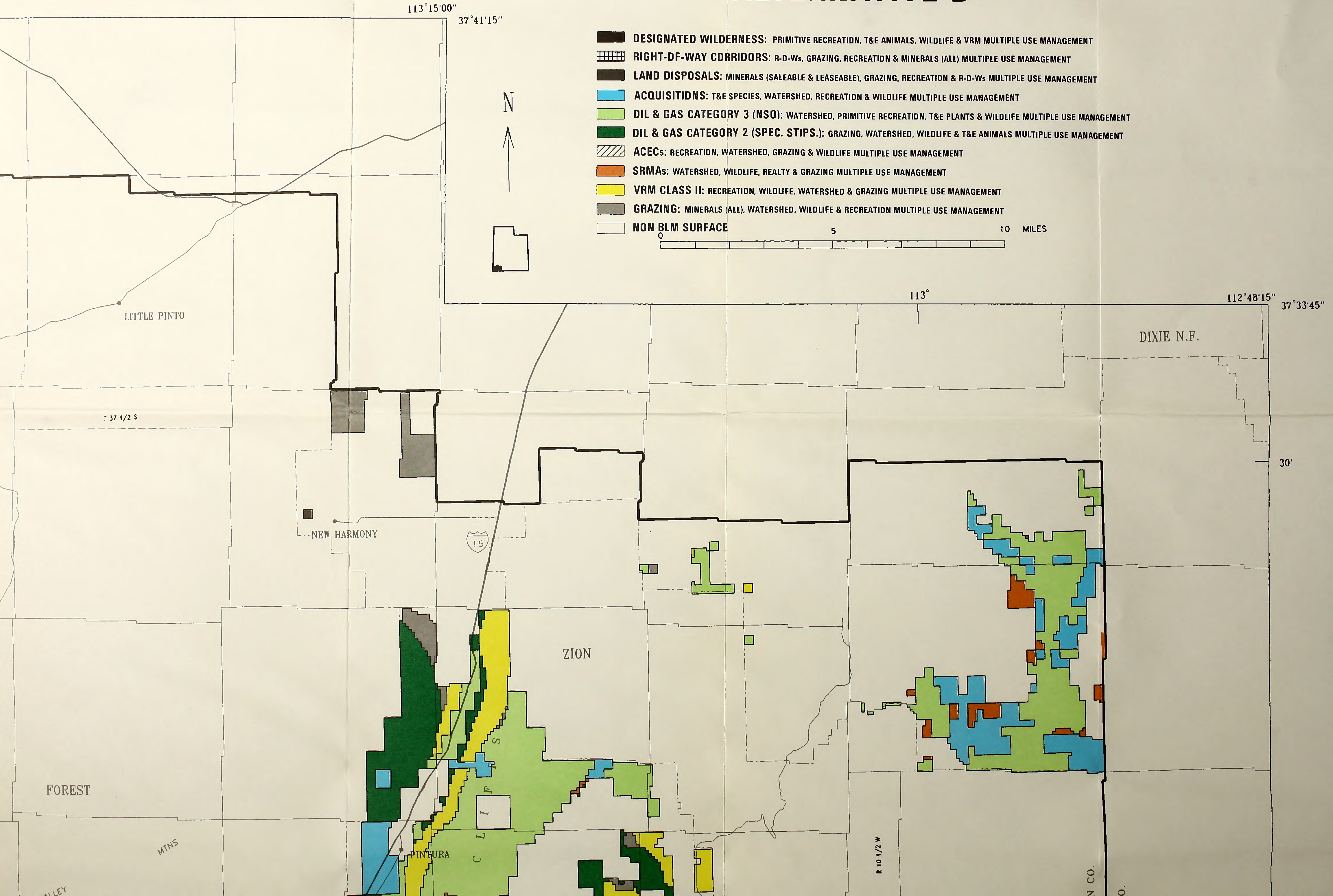
DIXIE RESOURCE AREA

CEDAR CITY DISTRICT

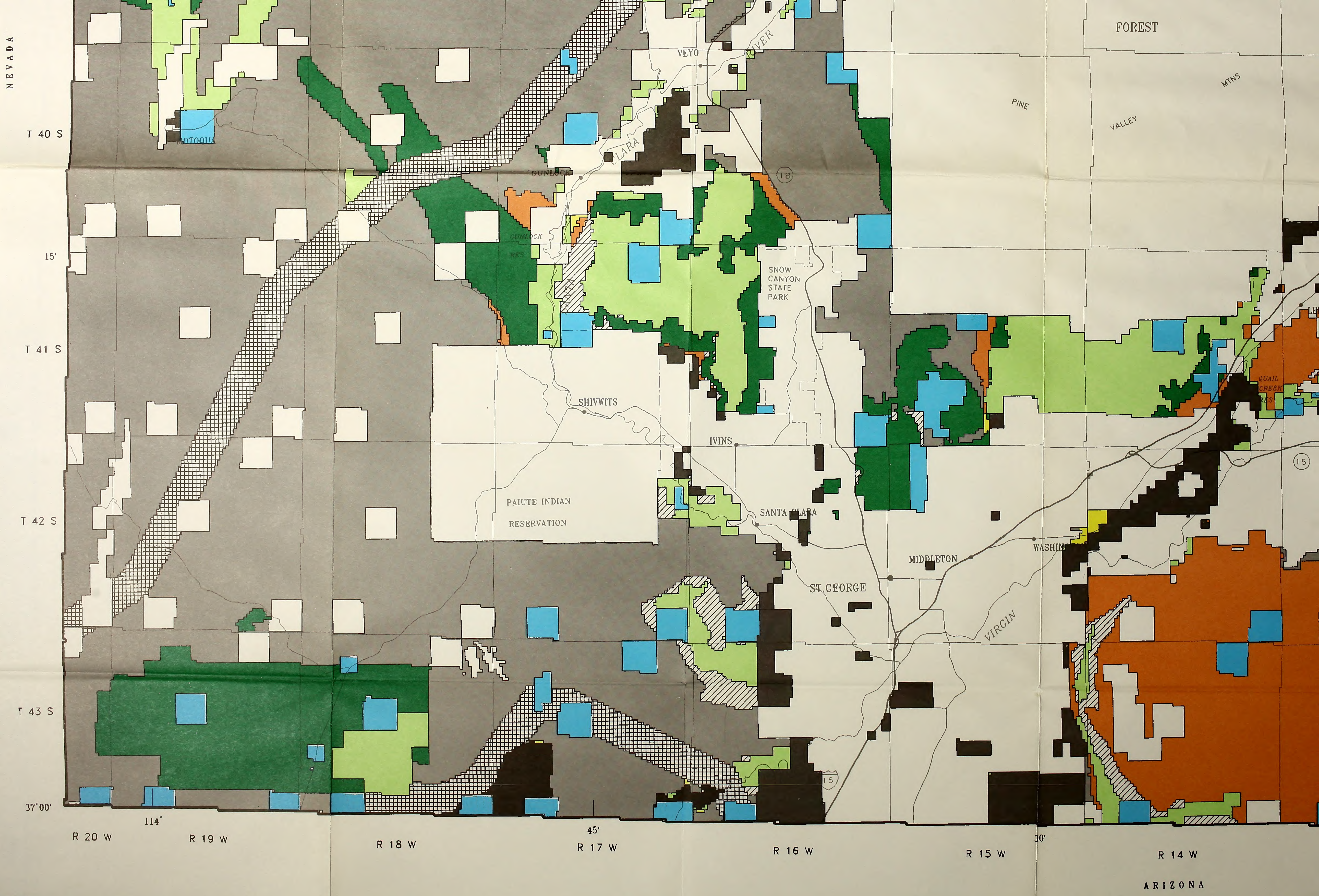


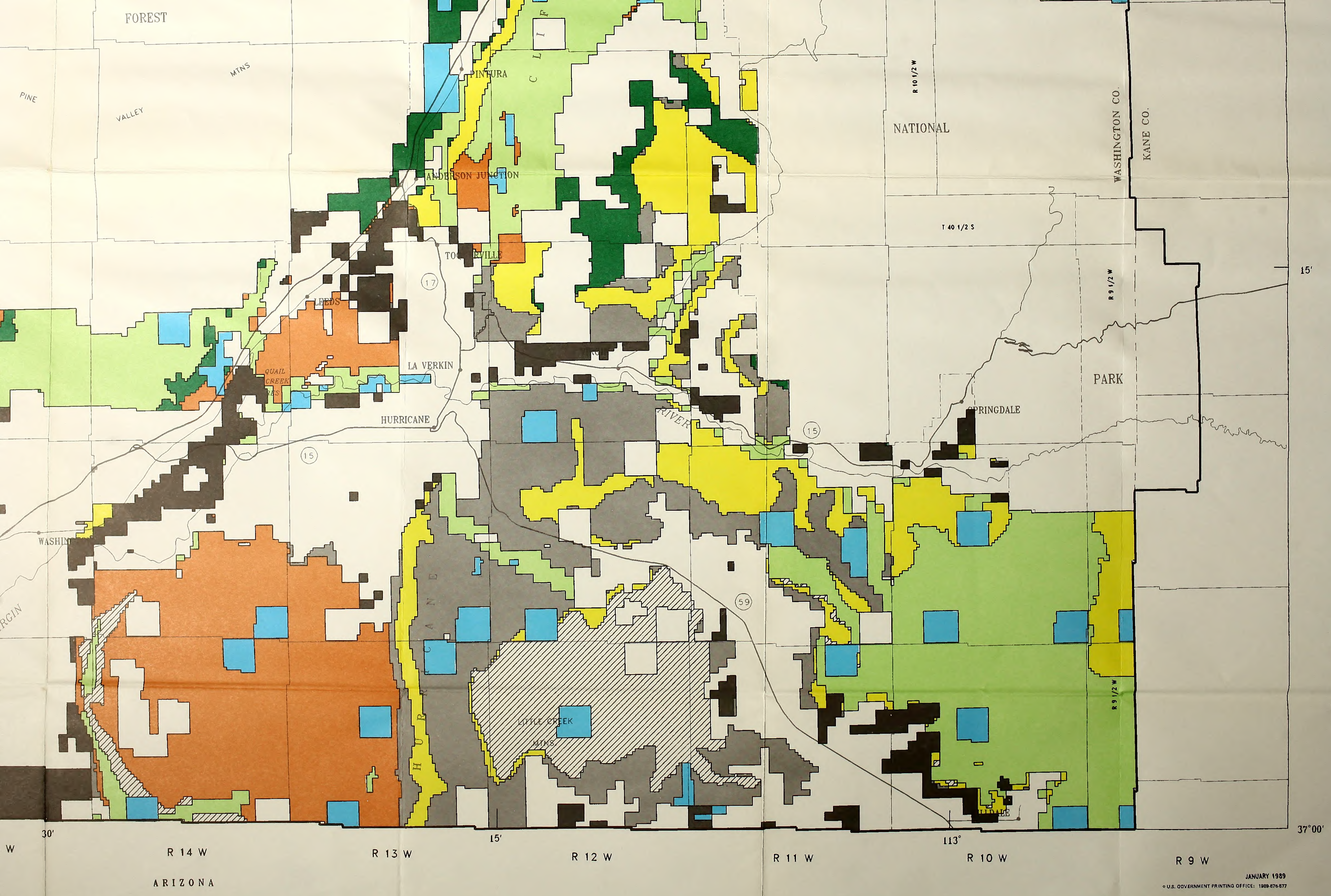
DRAFT DIXIE RESOURCE MANAGEMENT PLAN

ALTERNATIVE B



- ■ **DESIGNATED WILDERNESS:** PRIMITIVE RECREATION, T&E ANIMALS, WILDLIFE & VRM MULTIPLE USE MANAGEMENT
- ▦ **RIGHT-OF-WAY CORRIDORS:** R-O-Ws, GRAZING, RECREATION & MINERALS (ALL) MULTIPLE USE MANAGEMENT
- ■ **LAND DISPOSALS:** MINERALS (SALEABLE & LEASEABLE), GRAZING, RECREATION & R-O-Ws MULTIPLE USE MANAGEMENT
- 🟦 **ACQUISITIONS:** T&E SPECIES, WATERSHED, RECREATION & WILDLIFE MULTIPLE USE MANAGEMENT
- 🟩 **OIL & GAS CATEGORY 3 (NSO):** WATERSHED, PRIMITIVE RECREATION, T&E PLANTS & WILDLIFE MULTIPLE USE MANAGEMENT
- 🟩 **OIL & GAS CATEGORY 2 (SPEC. STIPS.):** GRAZING, WATERSHED, WILDLIFE & T&E ANIMALS MULTIPLE USE MANAGEMENT
- ▨ **ACECs:** RECREATION, WATERSHED, GRAZING & WILDLIFE MULTIPLE USE MANAGEMENT
- 🟧 **SRMAs:** WATERSHED, WILDLIFE, REALTY & GRAZING MULTIPLE USE MANAGEMENT
- 🟨 **VRM CLASS II:** RECREATION, WILDLIFE, WATERSHED & GRAZING MULTIPLE USE MANAGEMENT
- ■ **GRAZING:** MINERALS (ALL), WATERSHED, WILDLIFE & RECREATION MULTIPLE USE MANAGEMENT
- ☐ **NON BLM SURFACE**


NEVADA
T 40 S
15'
T 41 S
T 42 S
T 43 S
37°00'
114°
R 20 W
R 19 W
R 18 W
45'
R 17 W
R 16 W
R 15 W
30'
R 14 W
ARIZONA
FOREST
PINE
VALLEY
MTNS
VEYO
VER
MOTOQUA
GUNLOCK
CLARA
GUNLOCK
RES
18
SNOW
CANYON
STATE
PARK
SHIVWITS
IVINS
PAIUTE INDIAN
RESERVATION
SANTA CLARA
MIDDLETON
WASHIN
ST.GEORGE
VIRGIN
QUAIL
CREEK
RES
LE
15
15

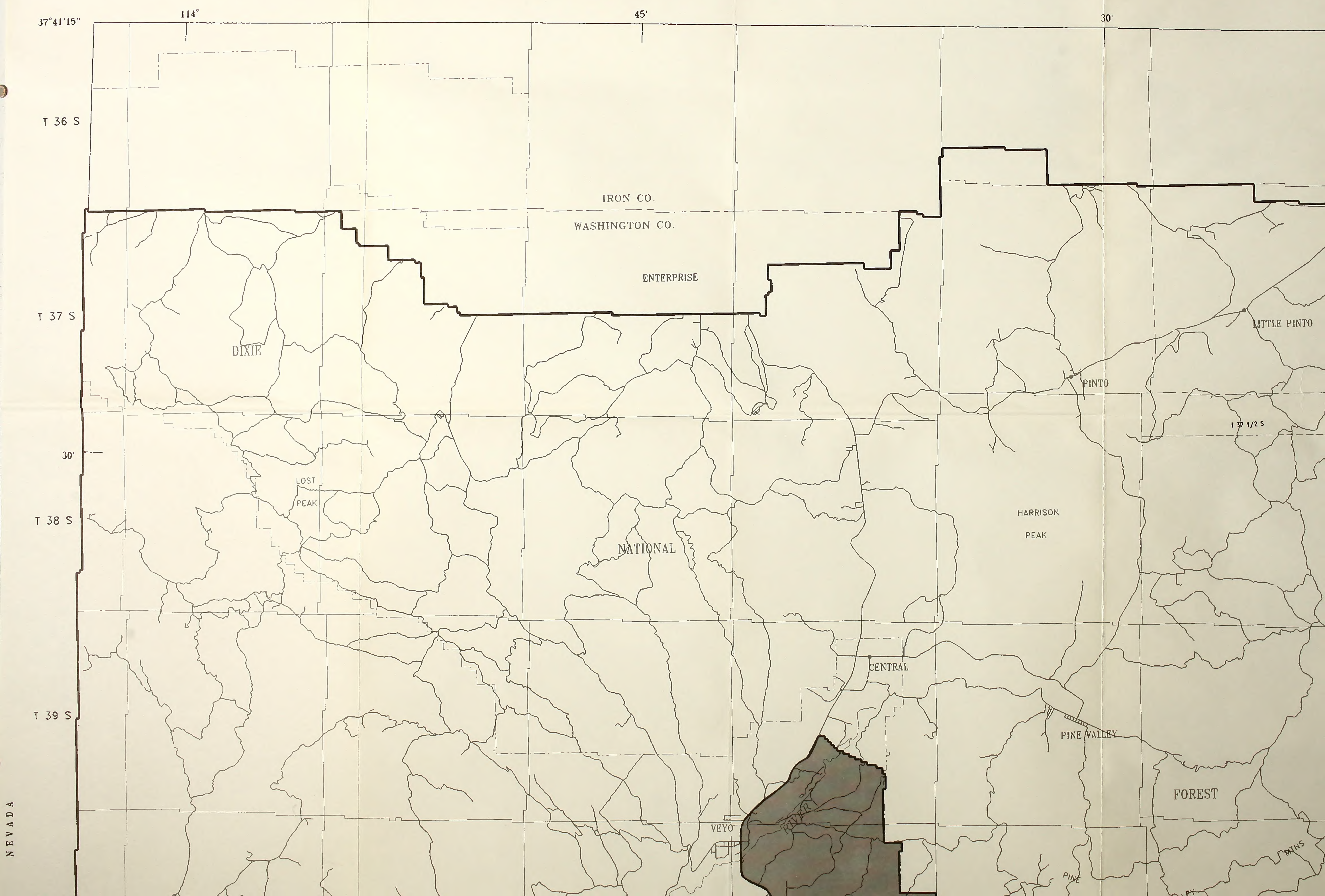


JANUARY 1989
☆ U.S. GOVERNMENT PRINTING OFFICE: 1989-676-577

ORV - alternative C

DIXIE RESOURCE AREA

CEDAR CITY DISTRICT



DRAFT DIXIE RESOURCE MANAGEMENT PLAN
OFF-ROAD VEHICLE DESIGNATIONS AND TRANSPORTATION MAP
ALTERNATIVE C

▨ OPEN TO OFF-ROAD VEHICLE USE

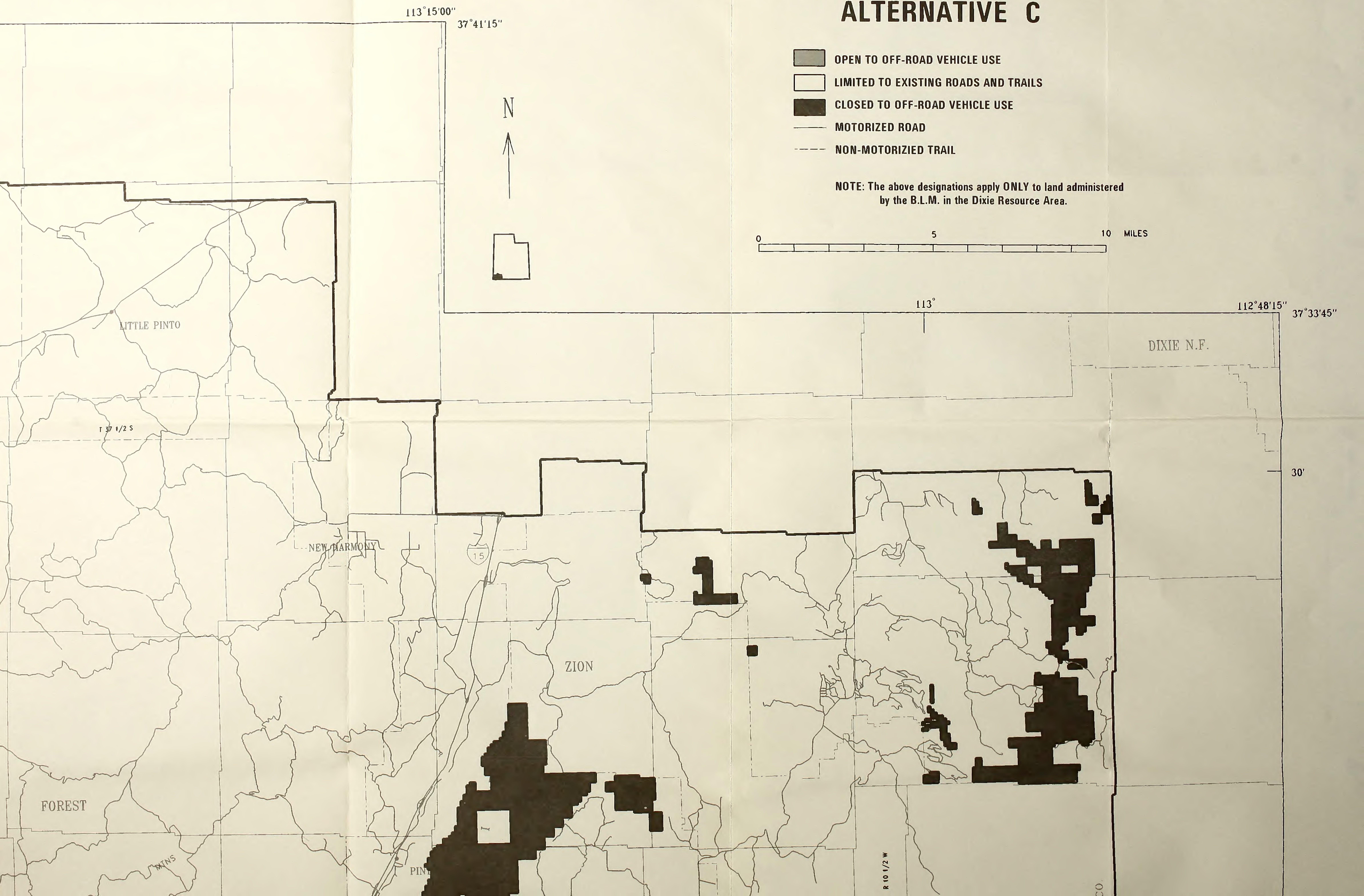
☐ LIMITED TO EXISTING ROADS AND TRAILS

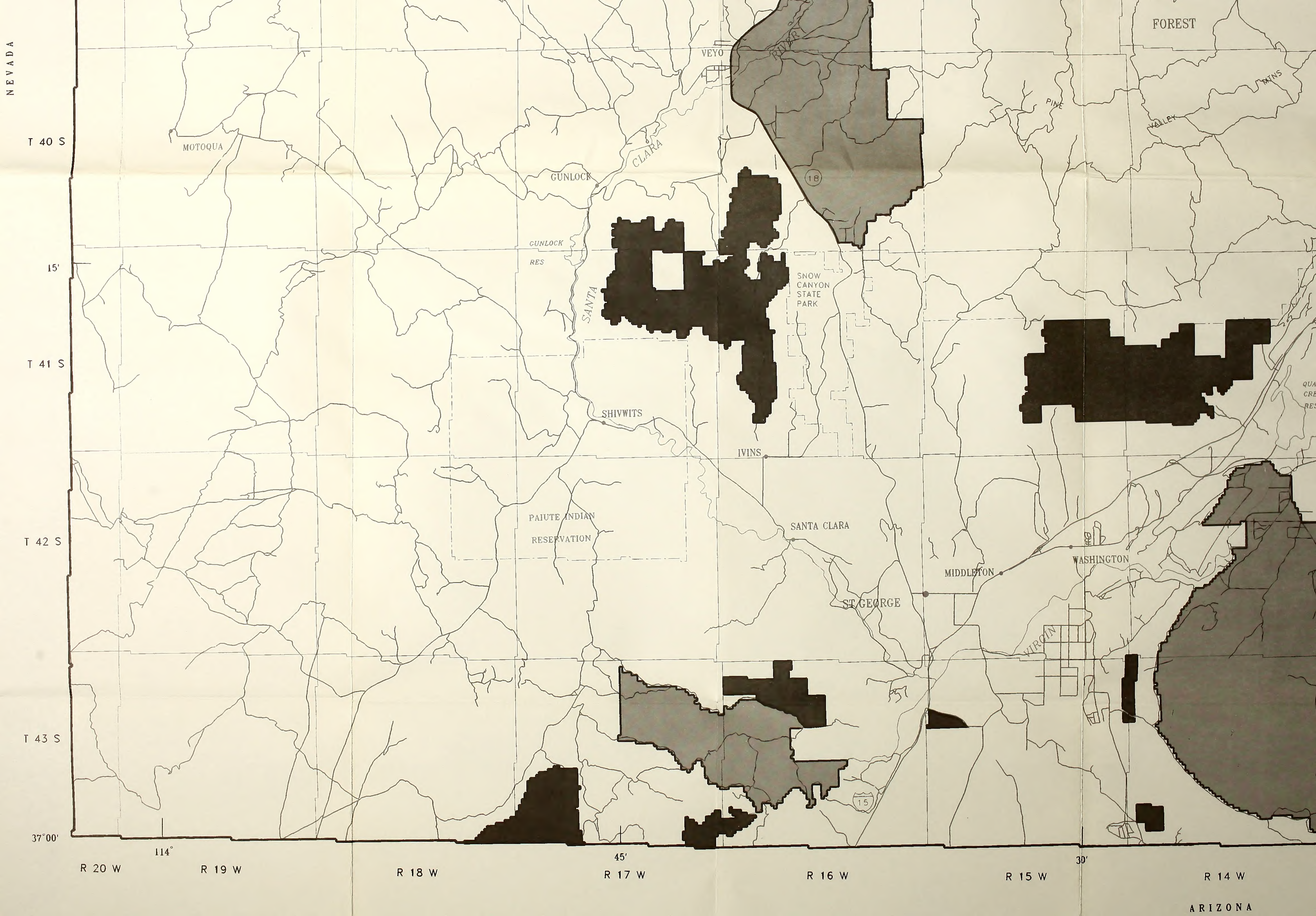
■ CLOSED TO OFF-ROAD VEHICLE USE

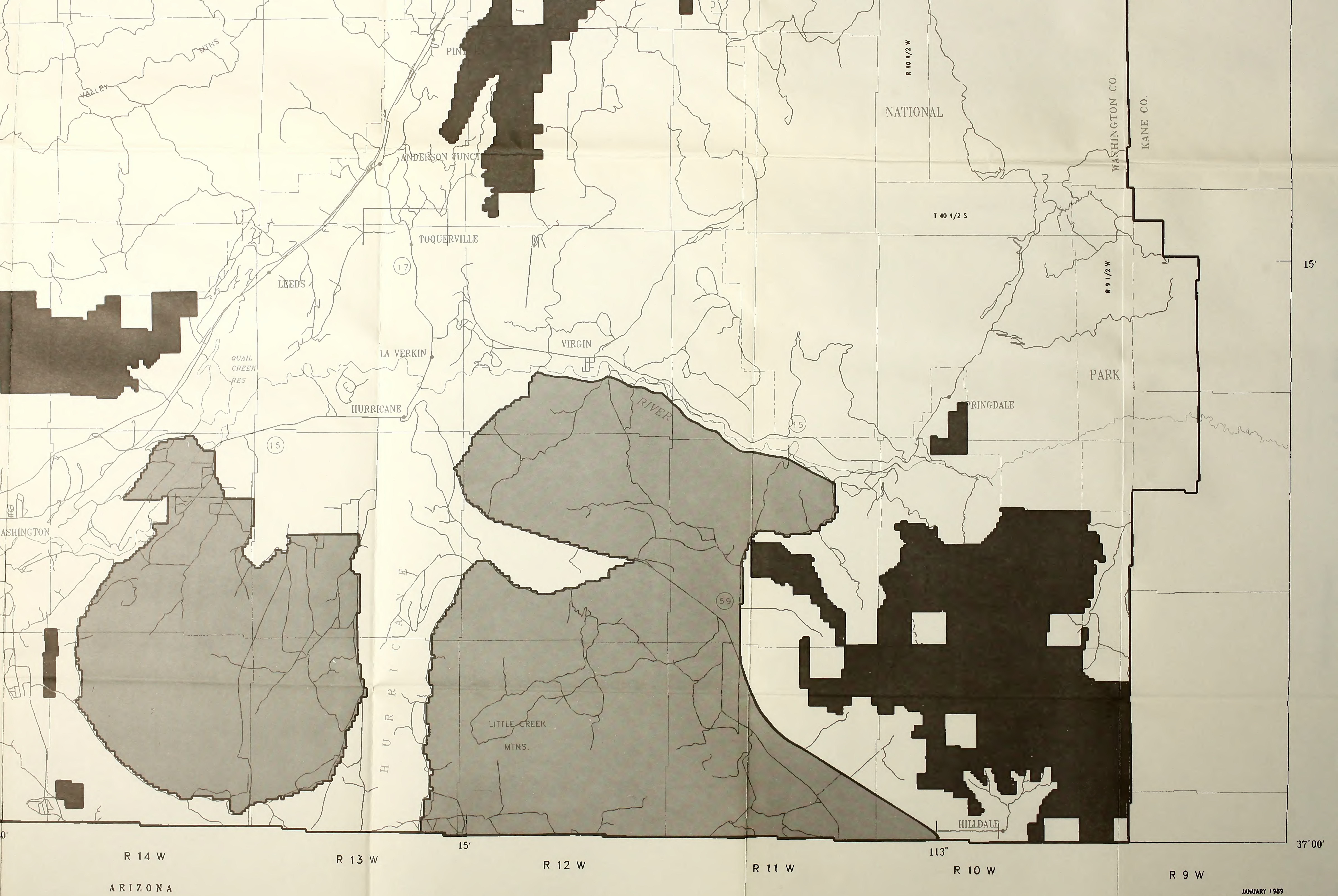
—— MOTORIZED ROAD

---- NON-MOTORIZIED TRAIL

NOTE: The above designations apply ONLY to land administered by the B.L.M. in the Dixie Resource Area.

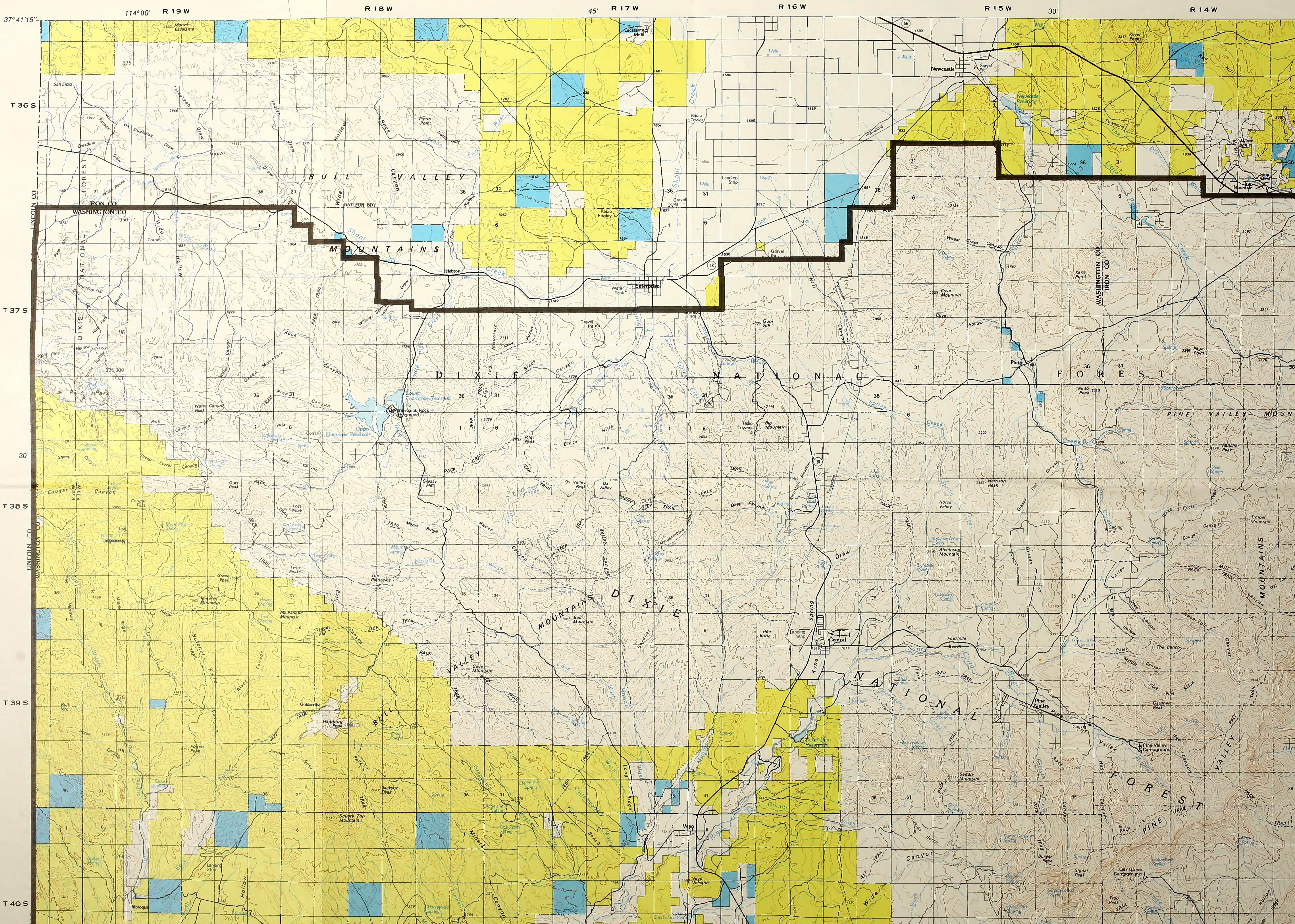


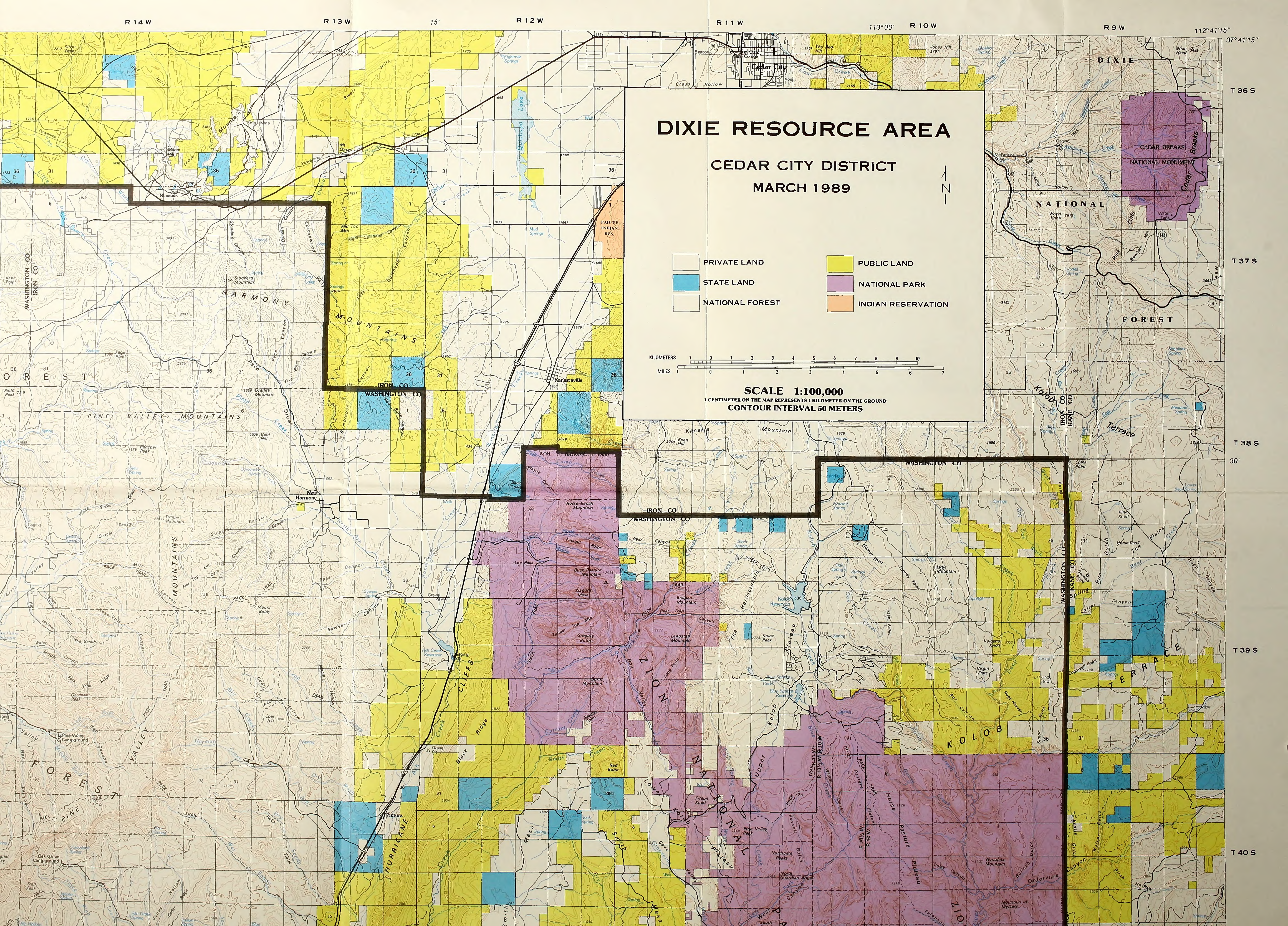

NEVADA
FOREST
VEYO
RIVER
PINE
VALLEY
MTNS
T 40 S
MOTOQUA
GUNLOCK
CLARA
18
GUNLOCK
RES
SANTA
15'
SNOW
CANYON
STATE
PARK
T 41 S
QUA
CRE
RES
SHIVWITS
IVINS
PAIUTE INDIAN
RESERVATION
SANTA CLARA
T 42 S
MIDDLETON
WASHINGTON
ST GEORGE
VIRGIN
T 43 S
15
37°00'
114°
45'
30'
R 20 W
R 19 W
R 18 W
R 17 W
R 16 W
R 15 W
R 14 W
ARIZONA



JANUARY 1989
☆ U.S. GOVERNMENT PRINTING OFFICE: 1989-676-577

Resource Area Map





DIXIE RESOURCE AREA

CEDAR CITY DISTRICT

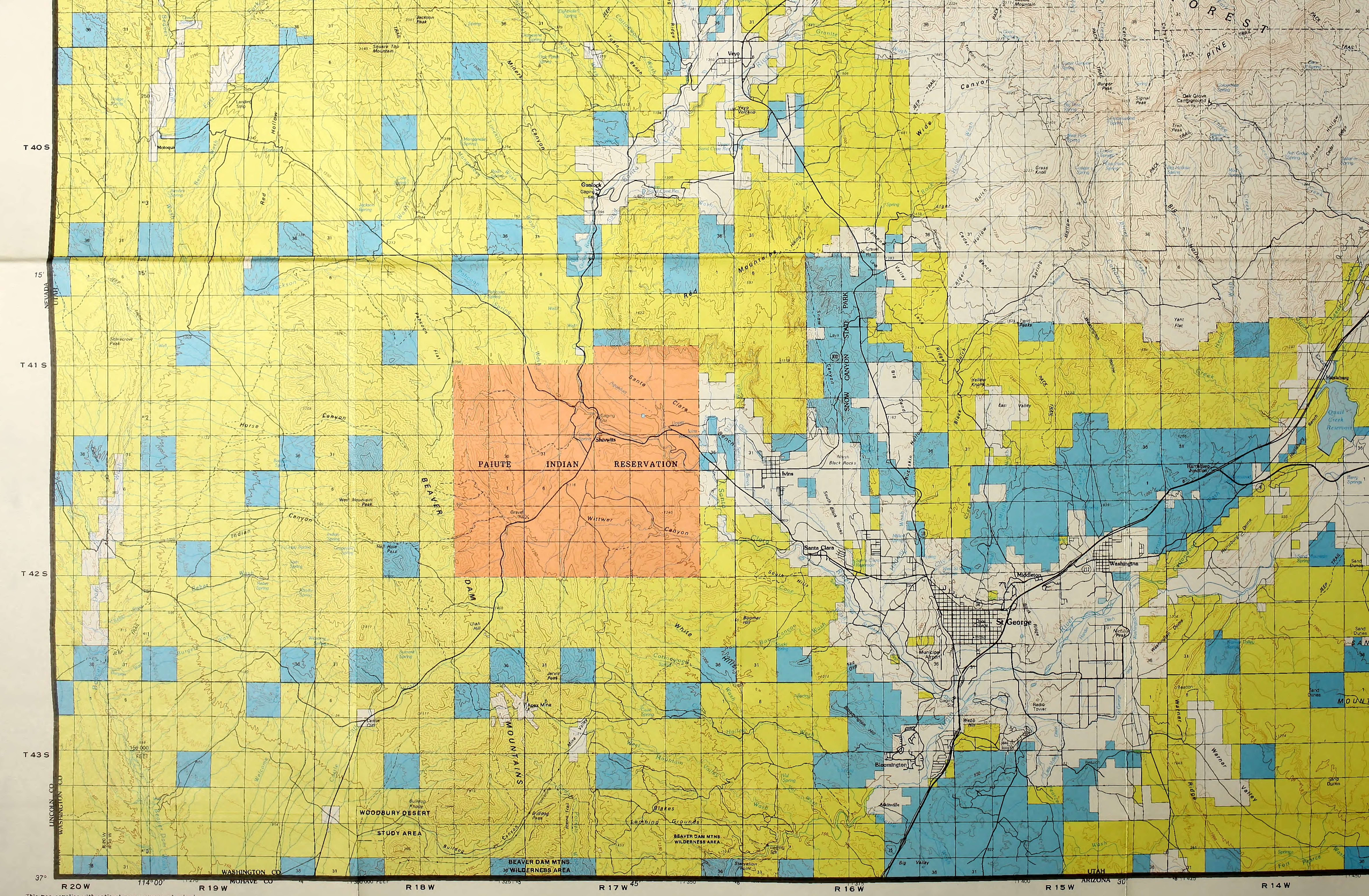
MARCH 1989

☐	PRIVATE LAND	🟨	PUBLIC LAND
🟦	STATE LAND	🟪	NATIONAL PARK
☐	NATIONAL FOREST	🟧	INDIAN RESERVATION

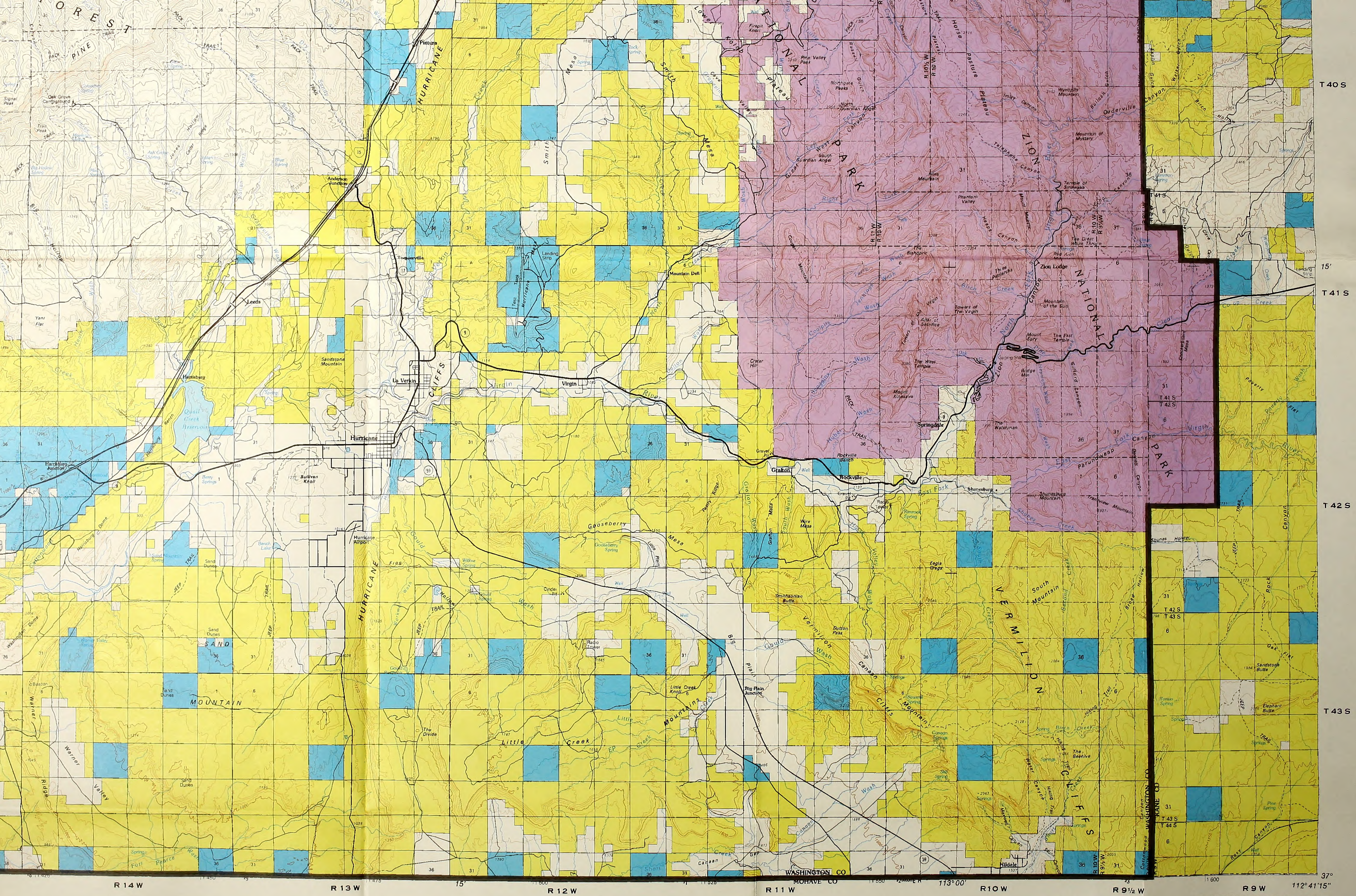
SCALE 1:100,000

1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND

CONTOUR INTERVAL 50 METERS



This map complies with national map accuracy standards.



☆U.S. GOVERNMENT PRINTING OFFICE: 1989-676-577